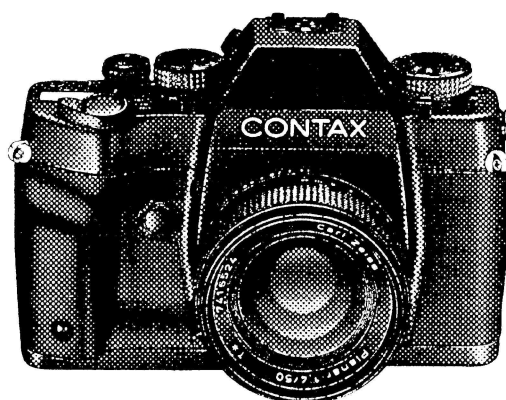




# CONTAX RX

## Repair Manual



Approved by	Made by
	



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## **A. GENERAL & TECHNICAL INFORMATION**

## FEATURES

### 1. "DIGITAL FOCUS INDICATOR" INCORPORATED

The CONTAX RX incorporates the "Digital Focus Indicator (DFI)" function as an auxiliary function for focusing.

The Digital Focus Indicator shows at the bottom of the viewfinder the variance between the focus point for the subject and the current focal position of the lens. (Quantity of defocusing)

Thanks to the accurate indication of the variance from the true point of focus by the DFI function, the camera assures both a high focus accuracy and excellent operational efficiency.

For DFI function, there are two indication modes, namely, Depth of Focus Scale Indication mode and Focus Scale Indication mode.

- The Depth of Focus Scale Indication mode indicates the depth of focus which changes with the aperture setting value as well as the variance from the true focus point and the direction of variance.
- The Focus Scale Indication mode indicates only the variance from the true focus point, with emphasis placed on easy continuous shooting.

### 2. HIGHLY DURABLE AND RELIABLE CAMERA BODY

The excellent durability and reliability of the camera body are realized so that it withstands a long use under severe shooting conditions. The highly reliable, rigid chassis is diecast from aluminum alloy and the top and bottom covers are made of metal so that they protect the precision mechanism inside the camera securely. In addition, the main controls are large dial type designed for easy operation and excellent readability.

### 3. DESIRED DRIVE MODE AND DFI FUNCTION SELECTABLE BY SINGLE ACTION

The Drive Mode Selector Dial is provided with a green position so that the photographer can select his or her desired shooting mode quickly. The green position is provided for presetting a desired scale indication (Focus Scale or Continuous) of the DFI system. While taking pictures, the setting of the Drive Mode Selector Dial to the green position will change the drive mode and scale indication to the preset ones, thus the photographer can cope with the change in the photographic conditions flexibly.

### 4. CUSTOM FUNCTIONS PROVIDED

The CONTAX RX provides a method called Custom Function, which allows the photographer to set functions as the user wishes. This method allows: ● Selection of viewfinder display ● Mode setting at green position ● Selection of AE Lock method ● Selection of multiple exposure ● Selection of the order of Automatic Bracketing Control (A.B.C.) system.

### 5. ENHANCED OPERATIONAL EFFICIENCY AT SHOOTING WITH FLASH

The combination of the CONTAX RX and TLA360 Flash Unit results in improved communication between camera and flash, the ISO and aperture information are held in common. And the displayed on the back panel of the flash shows the coupled shooting range. Also together with exposure compensation on the camera, exposure compensation on the flash is allowed so that the balance between flash light and natural light can be adjusted. The auto - power - on charging mechanism on the TLA360 is activated by de - pressing the shutter release button on the camera halfway even while the auto - power - off feature on the TLA360 for power saving is in action.

## 6. OTHER FEATURES

### ○ **Highly Reliable and High - precision Shutter**

The shutter speed can be set in a range of 16 seconds to 1/4000 second in Aperture Priority AE mode and Program AE mode, 4 seconds to 1/4000 second in Shutter Speed Priority AE mode, it can be set to B (Bulb), X or in a range of 4 seconds to 1/4000 second in Manual mode.

### ○ **Light Metering Modes**

The camera is provided with two light metering systems — the center - weighted average metering system, which displays excellent performance at continuous shooting, and the spot metering system, which determines the exposure precisely. Switching between these two systems can be performed by a simple operation of the Metering Mode Selector Lever. The spot metering zone corresponds to the about 5mm central area in the viewfinder.

### ○ **Exposure Control Modes**

The camera can be operated in Aperture Priority AE mode (Av) , Shutter Priority AE mode (Tv) , Program AE mode (P) and Manual Exposure mode (M) to cope with a wide range of photographic conditions.

### ○ **Dioptric Adjuster**

The CONTAX RX incorporates a dioptric adjuster which can be adjusted according to the ocular refraction of the photographer. The bright viewfinder and this dioptric adjuster facilitate high - precision focusing.

### ○ **Data Back for Imprinting Data between Frames Provided as Standard Feature**

As a standard feature, the camera is provided with the data back which imprints data in the vertical margin between the film frames. The photographer can select one of the five imprinting patterns — year/month/day, day/hour/minute, no print, month/day/year and day/month/year.

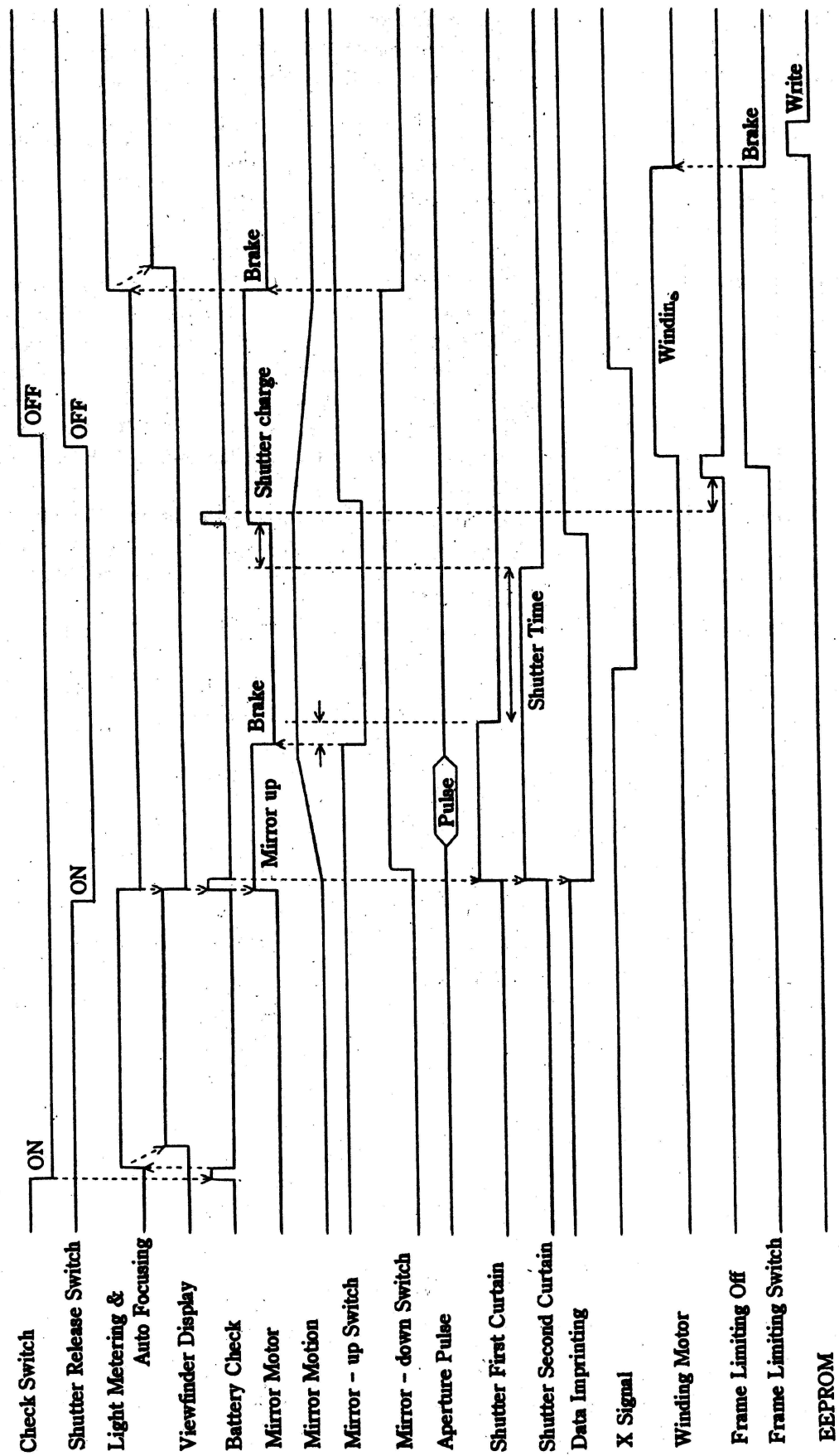
## CONTAX RX SPECIFICATIONS

Type	: 35mm Focal Plane Shutter AE SLR Camera.
Film Size	: 24 × 36mm.
Lens Mount	: CONTAX/YASHICA MM Mount
Shutter	: Electronically controlled, Vertical - travel Focal Plane Shutter.
Shutter Speed	: AV (Aperture Preferred) & P (Program) 16 secs. - 1/4000 sec., TV setting (Shutter Speed Preferred) 4 secs. - 1/4000 sec., Manual: B, X (1/125 sec.), 4 secs. - 1/4000 sec.
Flash Synchronization	: X - setting at 1/125 sec. or slower. Direct X - setting & synchro - terminal provided.
Self - Timer	: Electronic - type with 10 sec. delay.
Shutter Release	: Electromagnetic release with exclusive release socket.
Exposure Control Mode	: 1. Aperture preferred AE (Av) 2. Shutter Speed Preferred AE (Tv) 3. Program AE (P) 4. Manual Exposure (M) 5. TTL Auto Flash 6. Manual Flash
Metering System	: TTL Center - weighted Average Metering & Spot Metering
Metering Range (ISO 100, f/1.4)	: Center - weighted Average Metering: EV1 - EV20, Spot Metering: EV5 - EV20
Film Speed Setting	: Automatic with DX - coded film of ISO 25 - 5000. Manual Setting ISO 6 - 6400
AE Lock	: By Exposure Value on the image plane in memory
Exposure Compensation	: +2EV to -2EV (in 1/3 EV steps)
A.B.C. System	: A.B.C. lever . 3 frames continuous exposures or single frame advance. Exposure range: ± 0.5EV to ± 1.0EV
Coupled Flash System	: TTL Direct Flash Control w/TLA flash.
Flash Coupling	: Automatic shifting of shutter speed at full charge of the exclusive TLA flash.
Auto - Set Flash System	: Automatic switch - on system works with TLA - 360.
Second Curtain synchro	: Possible with an exclusive TLA flash which is capable of second curtain synchronization.
Focus Indicator	: TTL Phase Difference Detection method, Display with Digital Focus Indicator in the finder. Focus sensing range (ISO 100): EV 2 - 20.
View Finder	: Fixed Eye - Level Pentaprism (long eye - point) with 95% of field of view & 0.8X magnification with 50mm standard lens at infinity & -1D diopter
Dioptric Adjustment	: Internally adjustable from +1D to -3D.
Focusing Screen	: Horizontally split - image/Micropism (FW - 1) as standard. Focusing screens are interchangeable.
Finder Display	: Digital Focus Indicator, Shutter Speed, Aperture, Exposure Mark, A.B.C. display, Exposure compensation, Metering display, Flash mark, Film counter
External LCD Panel	: Display of: Film counter, Film speed, Self - timer count, LT exposure (Bulb) count, Customs function display, Battery warning mark, A.B.C. display, Multi - exposure display
Film Loading	: Auto loading, Automatic film advance to frame No.1 when the shutter release button is pressed.
Film Advance	: Automatic film advance with built - in motor

- Film Rewind** : Automatic film rewind with built - in motor (Film - rewind stops when the film is rewound.) Mid - roll rewinding possible.
- Drive Mode** : Single - frame, continuous exposure, self - timer and multi - exposure modes.
- Film Advance Speed** : Max. 3 frames per second on continuous mode (with fresh battery in normal temperatures.)
- Film Counter** : Automatic resetting, Additive type ; display shows LT exposure (Bulb) count, self - timer count, A.B.C. display
- ACC. Shoe** : Direct X - contact (Coupled With TLA flash)
- Custom Function** :
  - Display of selected mode in the finder (Focus priority mode/Exposure priority mode/No display)
  - Mode selection at green "o" position.
  - Method selection of AE - lock (by half - way pressing of shutter release button /by exposure check button, or no AE - lock setting.)
  - Multi exposure selection
  - A.B.C. exposure order selection
  - Depth - of - field preview operation
  - Film rewinding mode selection
- Camera Back Cover** : Opened by the camera back opening lever. Detachable, Data - back and film check window are provided.
- Data Back** : Built - in Quartz clock (auto calendar), Imprint: Year/Month/Day, Day/ Hour/Minute, Month/Day/Year, Day/Month/Year, and No print.
- Power Source** : 1 pc. 6V Lithum Battery (2CR5), 1 pc. 3V Lithum Battery (CR2025) for Data - back.
- Battery Check** : Automatic checking system. Display on the LCD panel.
- Others** : Depth - of - field preview button.
- Dimensions** : 151 (W) × 104.5 (H) × 59mm (D) (6 × 4-1/8 × 2-3/8in.)
- Weight** : 810grams (28.57ozs) (without battery)

\* Design and specifications are subject to change without notice in advance.

# **TIMING CHART**



## [INTERNAL STRUCTURE]

### (1) Body Structure

The main driving units and their layout are as shown in Fig.1. ① is the Film Winding Mechanism, ② the Quick Return Mechanism and ③ and ④ the Film Rewind Mechanism. These units are provided with their own motors which are designed to give appropriate torques, respectively.

The Film Winding Gear Train, located above the Grip, is driven by the motor in the Spool.

The Quick Return Mechanism, placed at the side of the Mirror Box on the Grip side, is driven by the motor in the lower part on the Grip side. This mechanism performs mirror up and down, aperture control and Shutter Lever charge by rotating the cam.

The Rewind Mechanism rewinds the film by the energy which is given from a motor to the 1st Gear Train ③ and transmits to the 2nd Gear Train via the Transmission Shaft ⑤

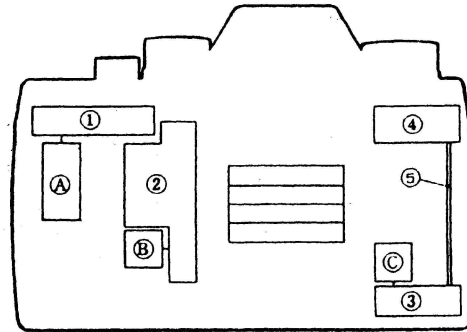


Fig.1 Layout of Units

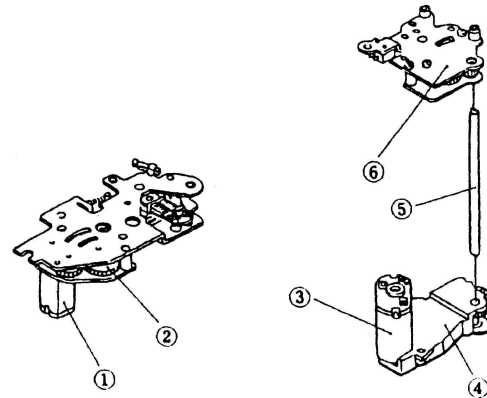


Fig.2 Winding and Rewind Units

### (2) Film Winding and Rewind Mechanisms

Fig.2 shows the structure of the Winding and Rewind Mechanisms. For winding, the dedicated high - performance miniature motor ① incorporated in the spool drives the Winding Spool via the Gear Train ② having a proper reduction ratio.

For rewinding, the dedicated high - performance miniature motor ③ at the bottom of the body drives the Rewind Fork via the Primary Reduction Gear Train ④ at the bottom of the body, the Drive Shaft ⑤ and the Secondary Reduction Gear Train ⑥ at the top of the body.

In the winding and rewind mechanisms, a clutch mechanism using an epicyclic gear is provided in the drive gear trains. Before the driving of one of the two mechanisms, the motor of the other mechanism is reversed to make the latter mechanism free.

Fig.3 shows operational positions of the Frame Limiting Mechanism which enhances the accuracy of the film stop position. When the Magnet Plunger has been energized after completion of the shutter travel sequence, the claw at the end of the Frame Limiting Lever ③ is released from the part of grooved in the Frame Limiting Cam ④ ( II ). Consequently, the Sprocket connected directly to the Frame Limiting Cam becomes free and the motor can drive the Spool to advance the film. During the film advancement by one frame, the trip in force for the claw is charged by the cam ( III ).

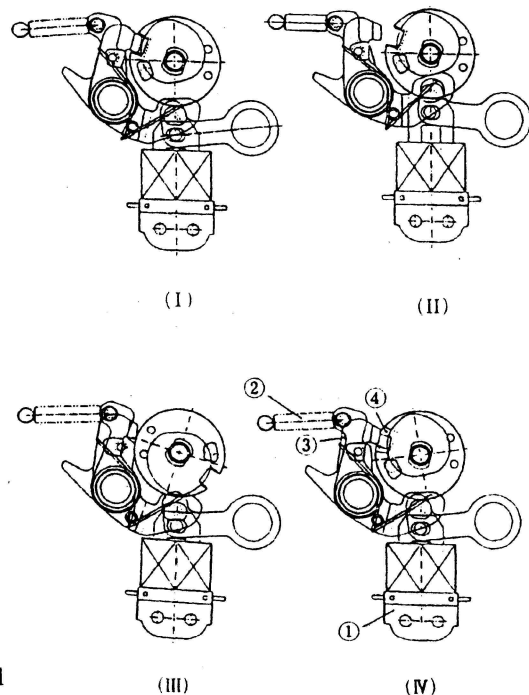


Fig.3 Film Frame Limiting Mechanism

And when the film has advanced by one frame, the claw trips in the part of grooved of the cam at the end of its one revolution so that the Sprocket stops with accuracy. The cam consisting of two layers reverses during rewinding. At reversing, the two layers rotate differentially to narrow the width of the grooved, thus preventing the claw from tripping in ( IV ). Therefore, in spite of the incorporation of the mechanical frame limiting means, automatic rewinding is allowed.

### (3) Mirror Drive and Aperture Control Mechanism (Fig.4)

The release sequence is such that the plunger operates to release the hook first and then the motor runs so that the lever moves on the cam to perform mirror - up, release the latch of shutter and aperture stop - down. Coupled with aperture stop - down, an encoder detects the amount of travel and the plunger and ratchet control aperture. After the opening and closing of the shutter, the motor runs again to perform mirror - down, shutter charge and aperture return at different timings so that the motor is loaded evenly.

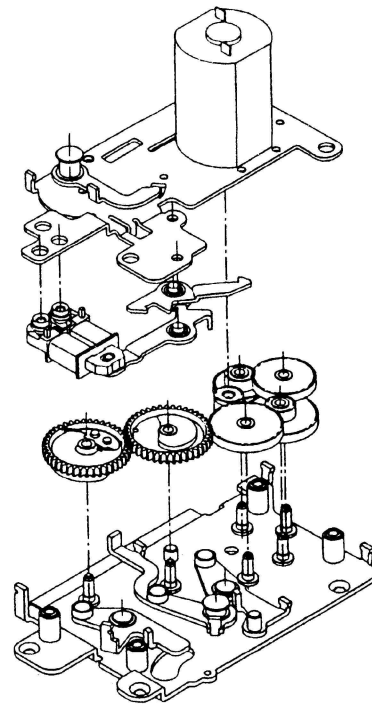


Fig.4 Mirror Drive and Aperture Control Unit

### (4) Optical System

Fig.5 shows the sectional view of the optical system.

For the viewfinder optical system, the Focusing Screen ① is used with the matte surface down, a Condenser Lens ② is located and the reflection surface of the Pentaprism ③ is coated by silver - evaporation to realize a bright viewfinder. The Eyepiece ④ is provided with a dioptric adjuster.

For the viewfinder screen, the horizontal split - image/ microprism collar screen is supplied as standard equipment. And additional four interchangeable types of focusing screens (microprism spot/collar screen, matte screen, sectioned grid matte screen and cross - scale screen) are available for enhanced focusing of various subjects and shooting conditions. In the light metering optical system, the element for steady light metering ⑤ is located above the eyepiece and the element for TTL direct flash metering ⑥ is under the Mirror Box. In the auto focusing system, the auto focusing element ⑦ is placed under the Mirror Box and light is led under the Mirror Box by the Sub Mirror to determine the distance.

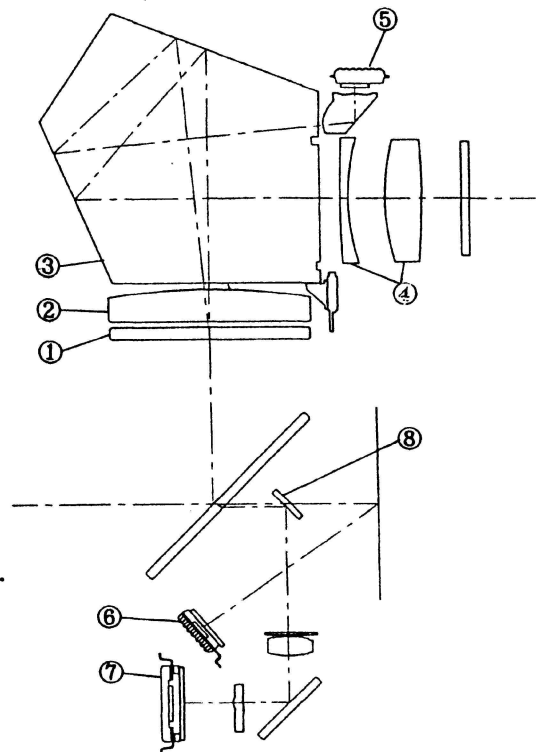


Fig.5 Optical System Layout



## [INFORMATION DISPLAY]

## (1) Viewfinder Display

The viewfinder display, using LCD information, is always kept easy to see by adjusting the brightness of the back light LED. The indication color is yellow - green, which is least stimulative to the eyes.

The indicators, concentrated at the bottom of the viewfinder, are ① Film counter, ② Metering display, ③ Exposure compensation, ④ Flash mark, ⑤ Digital focus indicator, shutter speed, ⑥ Aperture value, ⑦ Exposure mark and ⑧ Shutter speed indicator. (Fig.6)

The film counter indicates 00, 01, 02, ..., 99.

The 2 - digit positions show the A.B.C. photographic conditions: Both digits blink to show normal exposure, only the left digit blinks to show overexposure and the right digit blinks to show underexposure. At use of the self - timer, the counter counts down like 10, 09, 08, ..., 00.

In the metering display position, only a frame appears at center - weighted average metering while a circle blinks at the center of the frame when spot metering is turned ON. At AE lock, each display blinks.

The exposure compensation indicator shows "+" at setting on the plus side or "-" at setting on the minus side.

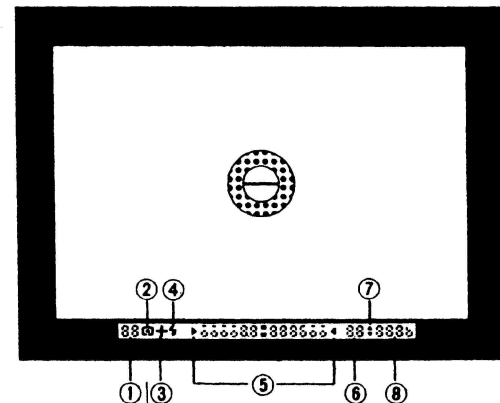
The flash mark lights up upon completion of the charging of the dedicated flash.

When the result of TTL automatic flash metering is within the allowable range, the mark blinks for two seconds to show the completion of flash metering. The aperture value display shows the aperture setting value in Aperture Priority AE mode or Manual Exposure mode while it shows an aperture value according to the brightness in Shutter Priority AE mode or Program AE mode.

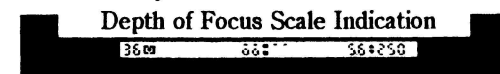
In the exposure mark position, a triangle mark lights up when exposure is above the manual exposure setting while a upside - down triangle mark lights up when exposure is below the setting.

In Aperture Priority AE mode, Shutter Priority AE mode and Program AE mode, the triangle mark blinks for warning when the external light is too bright.

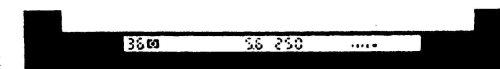
The shutter speed indicator shows 16" to 4000 for 16 seconds to 1/4000 second.



Focus Priority Indication



Exposure Priority Indication



- ① Film counter, ② Metering display,
- ③ Exposure compensation,
- ④ Flash mark, ⑤ Digital focus indicator,
- shutter speed, ⑥ Aperture value,
- ⑦ Exposure mark,
- ⑧ Shutter speed indicator

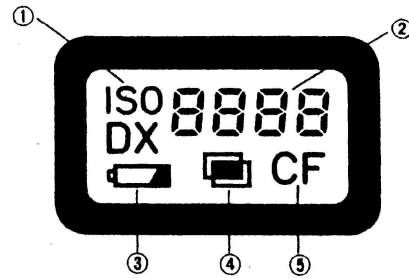
Fig.6 Viewfinder Display

## (2) External Display

An LCD panel is used for the external display. It indicates ① ISO, DX mark, ② film counter/film speed setting, ③ battery warning mark, ④ multi - exposure mark and ⑤ Custom Function mark.

The ISO mark lights up when ISO Setting mode is set or when film speed is displayed by pressing the "UP" or "DOWN" Button. The DX mark lights up at automatic setting by DX code.

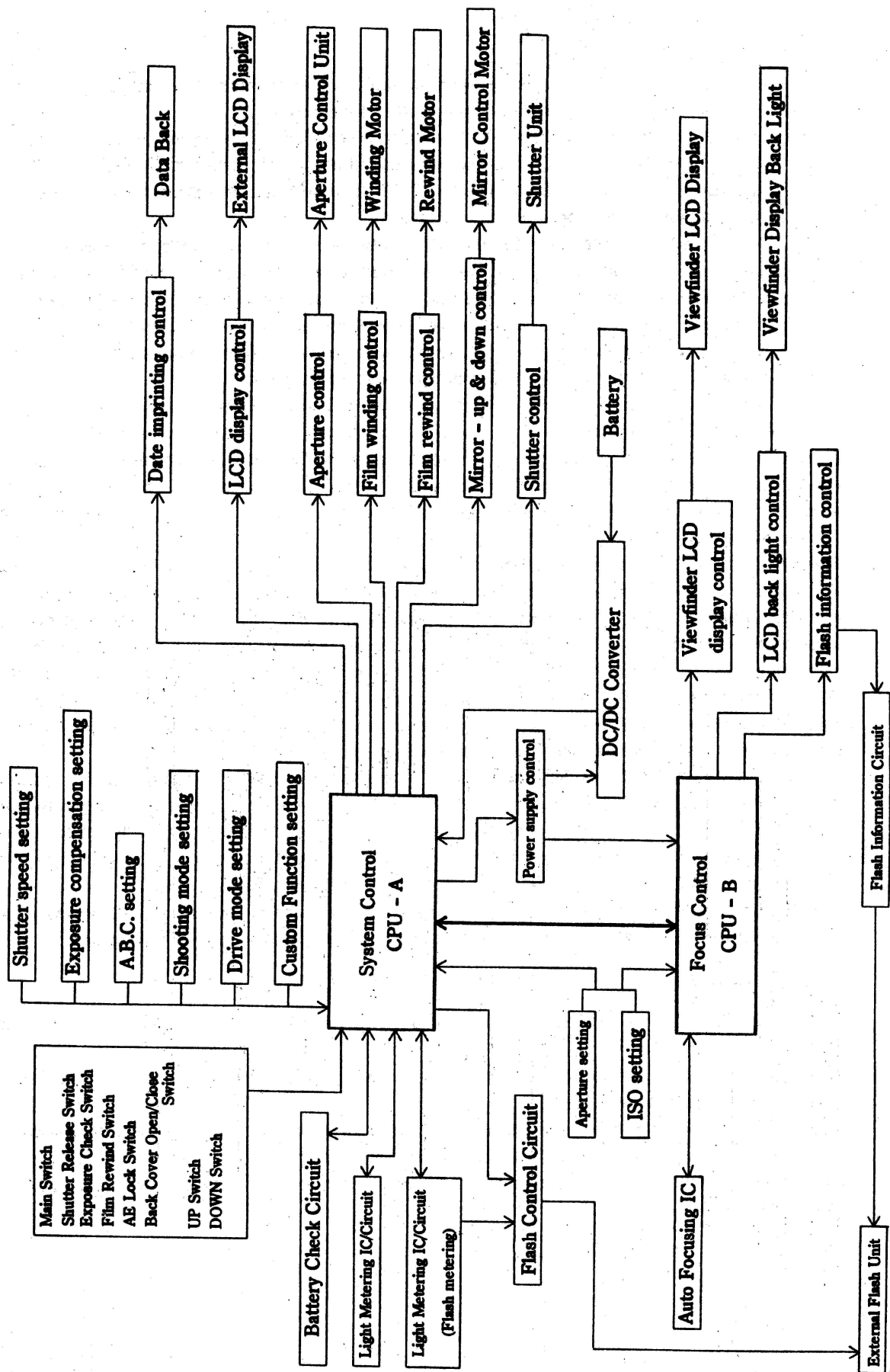
The film counter is always lighting even with the Main Switch turned OFF. Also this counter counts down at use of the Self - timer and indicates the shooting time at Bulb (up to 9'59 and repeating after that). The multi - exposure mark lights up when the multi - exposure position is selected and blinks for warning during multi - exposure shooting.



- ① ISO, DX mark, ② Film counter/film speed setting, ③ Battery warning mark, ④ Multi - exposure mark, ⑤ Custom Function mark

Fig. 7 External Display

Fig.8 Circuit Block Diagram



## [ELECTRONIC CIRCUITRY]

The electronic circuitry consists of two high - performance CPUs as its central elements, a light metering circuit, auto focusing circuit, flash control circuit and other drive circuits.

The CPU - A controls the basic operations of the camera, such as light metering and release sequence, and related arithmetic operations. The CPU - B controls the arithmetic operations for Digital Focus Indicator functions and related viewfinder displays. The two CPUs perform their respective controls at the same time, thus enabling high - speed operations of the camera.

The CPU - B is positioned under control of the CPU - A to eliminate unnecessary power consumption.

The light metering circuit consists of a light metering sensor IC and the CPU - A. The light metering sensor IC, which is a package containing a photodiode and processing circuit, selects internally a light metering range according to the command of the CPU, converts the photocurrent to a voltage and transmit it to the CPU.

The CPU has only to read this voltage by A/D conversion, since temperature compensation are already processed in the IC. Therefore, high - precision light metering is realized.

The auto focusing circuit consists of an auto focusing sensor IC and the CPU - B. The auto focusing IC integrates a CCD line sensor and signal processing circuit into one chip. The signal processing circuit extracts only the change in signal necessary for auto focusing and then amplifies and outputs it. The CPU receives this output directly for arithmetic operation. Because of no need of any external interface IC, the wiring is so simple that the circuit is not only resistant to external noise, showing a steady performance but also requires a small mounting area.

The flash control circuit consists of an flash metering sensor IC and the CPU - A. The flash metering sensor IC, which is a hybrid IC containing a photodiode and control IC in a package, starts flash metering upon receiving a signal from the CPU. It measures the quantity of the light reflected from the film plane and outputs a flash stop signal when the light exposure has reached a certain level. A high - precision flash metering is realized, since the flash stop signal is sent to the flash directly, not through the CPU. Also the CONTAX RX outputs through its hot shoe the necessary photographic data, such as aperture, ISO and exposure compensation by serial communication. Therefore, the indications and operations coupled with these data are allowed if an accessory capable of receiving this signal is mounted.

The battery check circuit checks the battery voltage according to the loads at the Main Switch ON, the Mirror up or down and film rewinding. It sends current into each drive motor for a moment and checks the battery voltage A/D converted by the CPU - A at that time. Judgment is made in two stages. In the 1st stage, the user is warned that the battery voltage is insufficient and in the 2nd stage, not only warning is given but also the camera operation is inhibited to prevent operation errors caused by voltage drop.

In addition, the CONTAX RX realizes a high - precision system by storing in EEPROM the values of light metering, auto focusing, flash metering and shutter speed to prevent their varying with cameras.

## [DFI FUNCTION]

It is the DFI (Digital Focus Indicator) function that has been developed to assure a quicker, easier, accurate focusing.

For the DFI function, there are two indication modes, namely, Depth of Focus Scale Indication mode and Focus Scale Indication mode (Fig.9).

The Depth of Focus Scale Indication mode indicates the depth of focus which changes with the aperture setting value as well as the variance from the true focus point and the direction of variance. The Focus Scale Indication mode indicates only the variance from the true focus point, with emphasis placed on easy continuous shooting.

### [Principle of DFI Function]

The DFI function is based on the TTL phase difference detection method which is widely used on SLR cameras. This focal point detection method is such that as shown in Fig.10, the image on the plane equivalent to the film plane is reformed as two images on the CCD Sensor through the refocusing lens and the distance between the two images on the sensor is measured to determine the variance from the true focus point and its direction.

Depth of focus is used to show the allowable range of the variance. This range is determined by the diameter of the minimum dispersion circle which shows the aperture value and the width of focal point. The larger the aperture value, the wider the depth of focus.

The Depth of Focus Scale Indication in the viewfinder shows the depth of focus corresponding to the aperture setting value (Fig.10).

The focus scale indication under the depth of focus scale indication can be compared with the depth of focus scale indication to decide whether or not the subject before or behind the focus is within the depth of focus.

The focus scale showing the focus variance is controlled as a function of depth of focus so that it can indicate the in - focus position precisely. This indication is very useful when attention is paid to depth of field or a precise focusing is required. The indication, however, may fluctuate with a slight movement of the subject or camera all the more because the in - focus position is indicated precisely.

The Focus Scale Indication mode shows only the focus variance, indicating in - focus, rear focus or front focus. In this indication, the in - focus width is changed by taking the aperture setting value into account, so that the indication does not fluctuate around the in - focus position significantly. Also the focus scale showing the focus variance is controlled as a function independent of depth of focus. Therefore, the indication responds smoothly to the focusing of the lens and thus to the focusing in a out - of - focus area, so that this mode is useful for taking a picture of a moving subject or general photographs.

Thus the DFI function detects focus variance so precisely that it can be checked against the depth of focus. Consequently, the sensitivity of the CCD sensor is improved. Also the focus variance detected precisely is indicated steadily by providing a hysteresis with a width corresponding to the variance.

The "▷" or "◁" mark blinks when the focus variance is relatively large. Both the "▷" and "◁" marks blink for warning when auto focusing is impossible because of too low contrast of the subject.

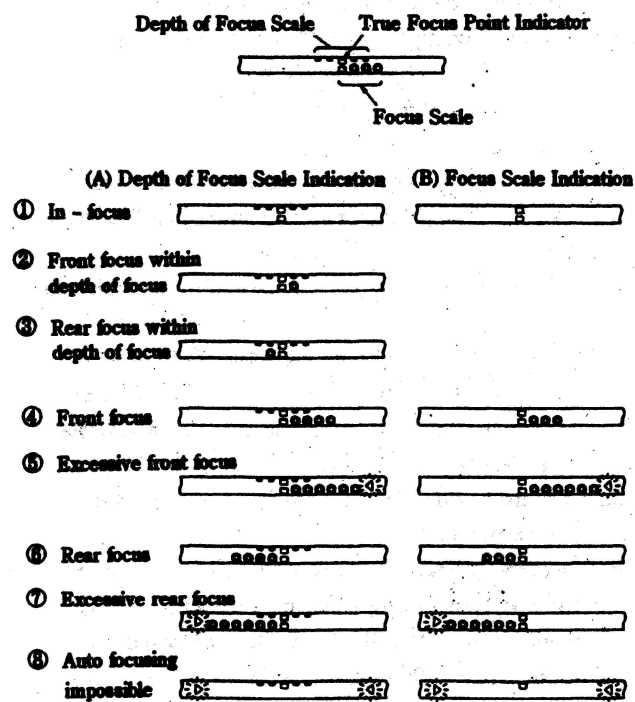


Fig.9 DFI Indication

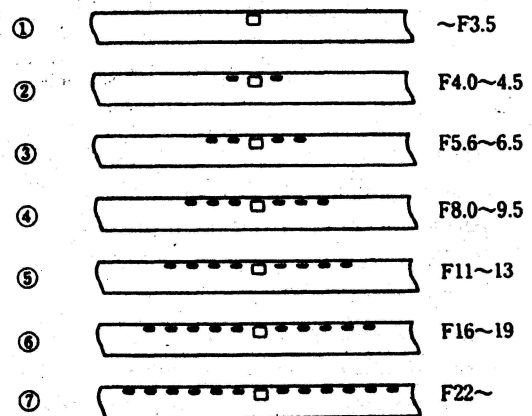


Fig.11 Relationship between Aperture and Depth of Focus

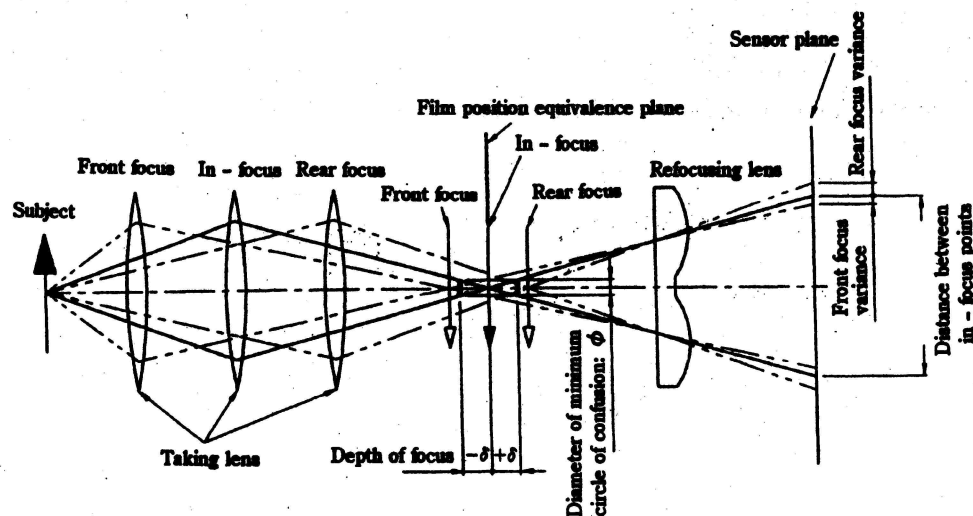


Fig.10 Principle of DFI Function

## [EXPOSURE CONTROL]

### (1) Light Metering

The light metering optical system and SPD are located above the eyepiece and an aspheric lens is used for the condensing lens to minimize the light metering error.

There are two light metering modes — center - weighted average metering mode and spot metering mode. Either one can be selected by means of the Metering Mode Selector Lever. In the spot metering mode, light metering is made for the zone within a circle of 5mm diameter (converted value on film plane) in the center of the screen.

When the Main Switch is set to AE Lock (AEL), the measuring light exposure is locked at each measured in any light metering mode. It is also possible to select a custom function so that AE Lock can be set by depressing the Shutter Release Button halfway.

In TTL direct flash metering, light reflected from the film plane is measured by the SPD located under the Mirror Box and a flash stop signal is output to control the flash intensity of the TLA Flash Unit.

### (2) Shutter and Exposure Mode

There are six exposure modes — Aperture Priority mode (Av), Shutter Priority mode (Tv) and Program AE mode (P), Manual Exposure mode (M), X - sync (X) and Bulb (B). Among these six modes, any desired one can be selected and set by means of the Exposure Mode Selector Lever.

In Tv or M mode, shutter speed can be set and controlled in the range of 1/4000 to 1 second in increments of 1 Tv by setting the Shutter Speed Dial. In Av or P mode, shutter speed is controlled in the range of 1/4000 second to 16 seconds. When the aperture value calculated from the shutter speed setting through the Dial exceeds the control range, the shutter speed is so shifted that a proper exposure is obtained.

For shooting with flash, the TTL direct flash metering can be used in combination with the TLA Flash Unit. Also upon completion of charging the TLA Flash, the flash charge completion indicator appears and the shutter speed (1/125 sec.) allowing synchronization is automatically set.

When the TLA - 360 Flash Unit is used, the exposure compensation setting value on the TLA - 360 is effective in TTL direct flash metering. Therefore, with this value combined with the exposure compensation value on the camera, the photographer can create the photographic image by adjusting the balance between external light and flash light.

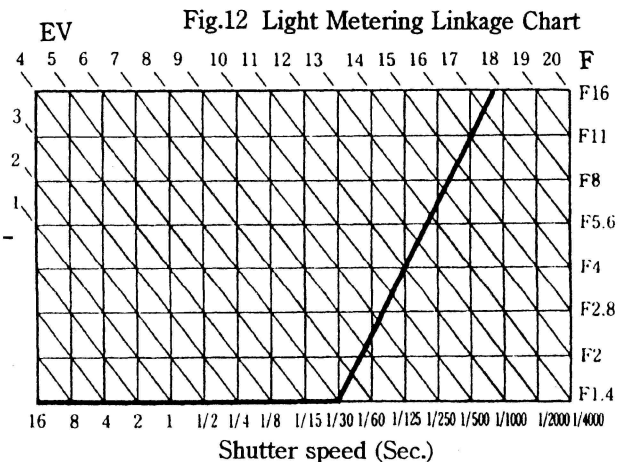
For A.B.C. (automatic exposure compensation in a three frame sequence) function,  $\pm 0.5\text{EV}$  or  $\pm 1.0\text{EV}$  can be selected as the compensation values. A.B.C. exposure order is either ① standard exposure, ② over exposure and ③ underexposure or ① overexposure, ② standard exposure and ③ underexposure, which can be selected by setting an appropriate custom function. This A.B.C. function can be used in all the exposure modes except shooting with flash or Bulb.

Exposure compensation can be set in the range of  $-2.0$  to  $+2.0\text{EV}$  in  $1/3\text{EV}$  steps. On the viewfinder display, "+" or "-" blinks to show that exposure is being compensated.

### (3) Multiple Exposure

Multi - exposure function can be used even in combination with any of the above - mentioned exposure functions so that the photographer can expand his or her photographic creativity.

By custom functions, the photographer can select flexibly a multiple exposure sequence based on a preset number of exposures or multi - exposure which can be continued as long as the photographer desires. Since AE Lock can be kept effective by the switch, continuous picture - taking by any desired number of frames is possible with an exposure value fixed.



A-15

**[CUSTOM FUNCTIONS]**

The CONTAX RX provides the Custom Function, which allows the photographer to set functions in desired combinations. Table 1 shows the functions which can be set by the Custom Function and their settings. The camera is shipped with the functions in the respective standard settings. The settings, however, can be changed according to the shooting conditions and the subject.

For example, when AE Lock is to be effected by depressing the Shutter Release Button halfway, set CF4 to 1. In this setting, AE Lock is set by depressing the Shutter Release Button halfway or pressing the Exposure Check Button. All the custom functions can be easily restored to the standard settings by setting CLE.

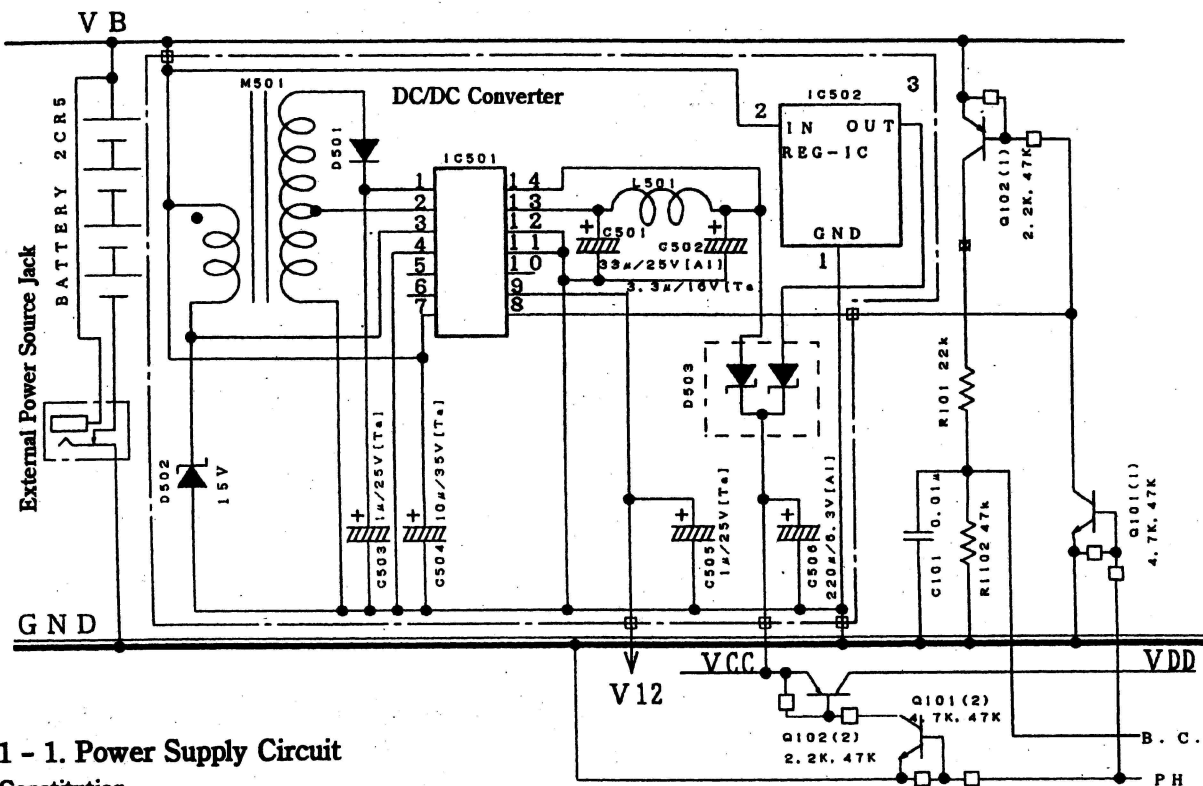
**Table 1 Settings of Custom Functions**

CF	Description	Setting " 0 "	Setting " 1 "	Setting " 2 "	Setting " 3 "
1	Viewfinder display for " S ", " C " or " ∞ "	Depth of Focus Scale indication	Focus Scale indication	Exposure priority indication	No indication
2	Drive mode at green position	S	C	—	—
3	Viewfinder display at green position	Focus Scale indication	Depth of Focus Scale indication	—	—
4	Exposure Check Button	Exposure check function	Exposure check function + AE Lock function	—	—
5	Multi - exposure setting	Automatic release after a preset number of exposures	Manual release after a desired number of exposures	—	—
6	A.B.C. exposure order	Normal → Overexposure → Underexposure	Overexposure → Normal → Underexposure	—	—
7	Preview operation	The Depth of Field Preview button stops down the lens as long as the button is depressed	The Depth of Field Preview button is pressed once to stop down the lens and again to release	—	—
8	Film rewind type	Film rewound entirely in cartridge	Film leader remaining outside cartridge	—	—
9	Film rewind method	No auto rewind	Auto rewind	—	—
CLE	All Custom Functions are reset	—	—	—	—



## [DESCRIPTION OF ELECTRIC CIRCUITRY]

## 1. Power Supply and Battery Check Circuit



## 1 - 1. Power Supply Circuit

## Constitution

The Power Supply Circuit consists of a DC/DC Converter IC whose control terminal (Pin 8 of IC501) controls battery check by hardware. (PH signal)

## Functions

Upon PH ON "Hi", the DC/DC Converter IC supplies a voltage of 5V to VCC and 12V to V12. At the same time, Q102 (2) is turned ON and the voltage of 5V is also supplied to VDD.

The voltage at VCC is assured unless the voltage at VB drops below about 2.5V.

At PH OFF "Lo", the DC/DC Converter stops and power to VCC is supplied from the Regulator IC (IC502).

In this state, operation is possible until the voltage at VCC drops to the reset voltage (VCC=3.7V).

Q102 (2) is turned OFF and thus the voltage supply to VDD is stopped.

The fluctuation range of the power supply voltage is as follows:

Vcc	$4.8 \pm 0.3V$
VDD	$4.8 \pm 0.3V$

Condition: current consumption 0 ~ 50mA

## 1 - 2. Battery Check Circuit

## Constitution

The Battery Check Circuit consists of Q102(1), R101, R102 and C101.

## Functions

The VB voltage divided by R101 and R102 is input to the A/D port of the CPU-A for checking.

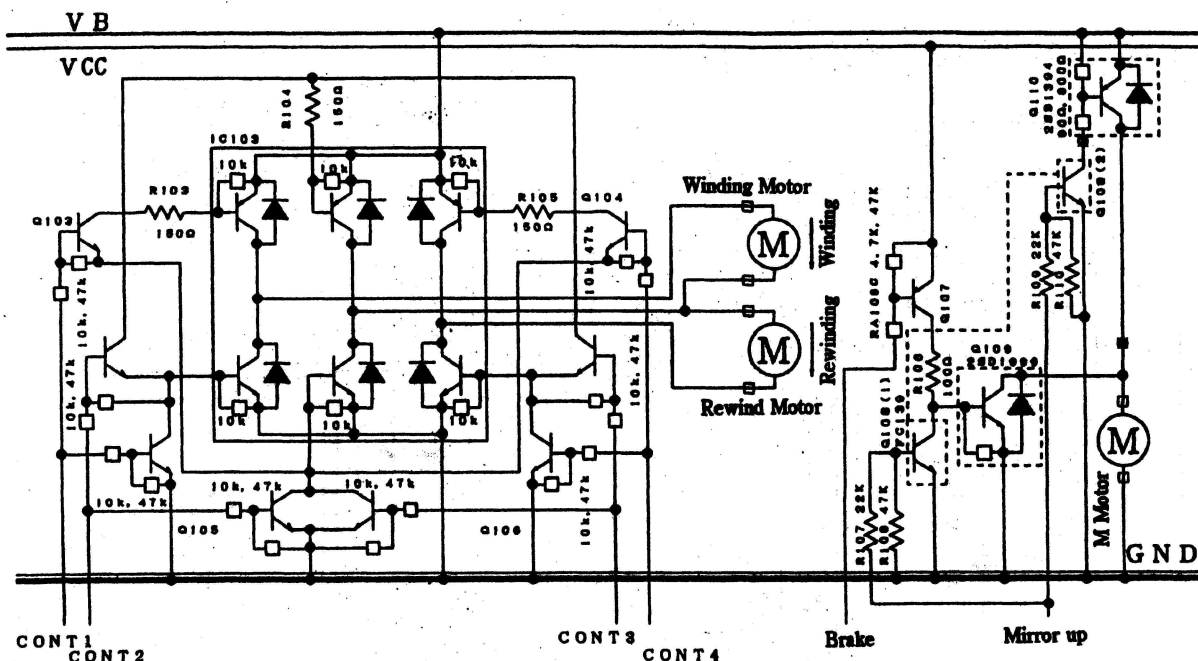
This voltage is stabilized by C101 and the current to be consumed by this resistor is cut by Q102 (1) at PH OFF.

The voltage input to the A/D port is as follows:

$$VBC = VB \times 47k / (22k + 47k) = VB \times 0.681$$

(VB must be a maximum of 7.2V and B.C must not exceed 5V.)

## 2. Motor Drive Circuit



## 2 - 1. Winding/Rewind Circuit

## Constitution

This circuit consists of the drive IC (IC103), transistors Q103 and Q104 for predriving, transistors Q105 and Q106 for protection, and base resistors R104, 105 and 106.

## Functions

**The control terminals are controlled by the CPU - A as shown below.**

**The Winding Motor and Rewind Motor must not run at the same time.**

Thanks to a safety circuit incorporated, no through - current flows even if all the control terminal signals turn "Hi" because of, say, the runaway of the CPU.

CONT1	CONT2	CONT3	CONT4	Winding	Rewind
Hi	Lo	Lo	Lo	Forward run	Stop
Lo	Hi	Lo	Lo	Reverse run	Stop
Hi	Hi	Lo	Lo	Brake	Stop
Lo	Lo	Hi	Lo	Stop	Forward run
Lo	Lo	Lo	Hi	Stop	Reverse run
Lo	Lo	Hi	Hi	Stop	Brake

## 2 - 2. Mirror - up Circuit

## Constitution

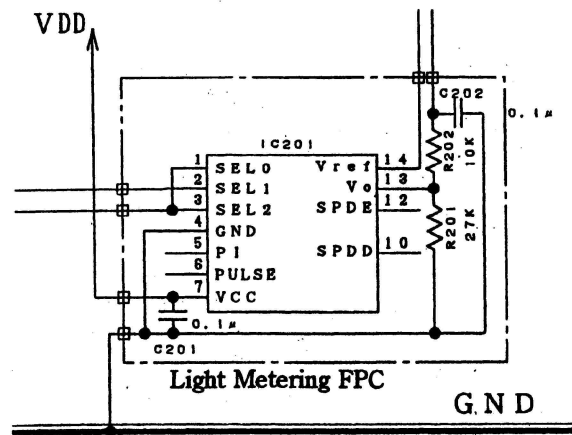
This circuit consists of Q110 for driving, Q109 for brake, Q107, Q108 (1) and (2) for predriving and for protection against through - current and the resistors R106, R107, R108, R109 and R110 for current - limiting of the transistors.

## Functions

The mirror - up control terminal signal is turned "Hi" to start the Mirror - up Motor and the brake control terminal is turned "Lo" to brake the Mirror - up Motor.

To prevent a through - current flowing in Q109 and Q110, Q109 is not turned ON with the Mirror - up Motor running even if the brake control terminal signal turns "Lo".

### 3. Light Metering Circuit



#### 3 - 1. Light Metering Circuit

##### Constitution

This circuit consists of a light metering IC (IC201) incorporating an SPD, and R201, R202, C201 and C202

##### Functions

The SEL0, 1 and 2 terminal signals are directly controlled by the CPU - A to determine the light metering area. The SEL0 and SEL2 terminal signals are under a common control for use of spot metering and center - weighted average metering.

The following table shows the relationship between the control terminal settings and the light metering areas.

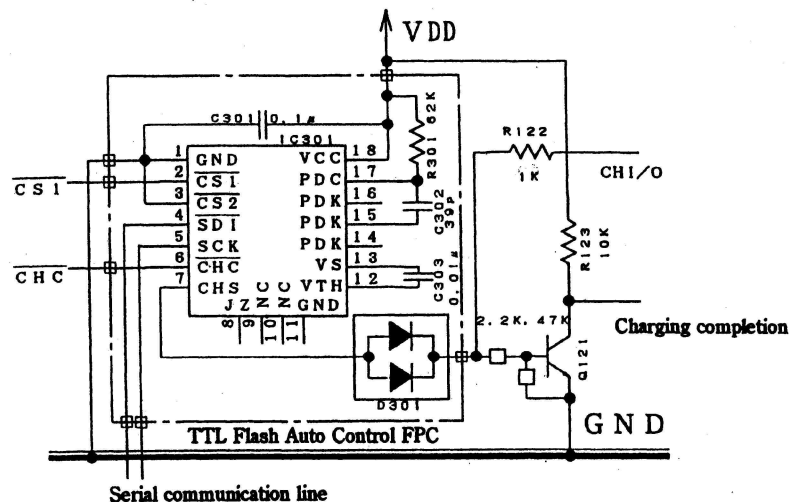
Control Terminal Settings and Light Metering Areas

Control terminal	Average	Spot	Decision
SEL 0, 2	H	L	L
SEL 1	H	H	L

When the decision state of the light metering IC is not used, the SEL1 terminal voltage may be pulled up to the VDD voltage. As the Vo terminal outputs a voltage proportional to the quantity of light received by the built - in SPD, the CPU - A receives this voltage for a certain time through the A/D conversion port and calculates the light exposure. Also light metering IC automatically performs temperature compensation and compensation for differences due to light metering areas, so that the CPU - A has not to perform extra operations.

Light exposure adjustment is not performed by hardware, but by arithmetic operation using the adjusted values (reference value and inclination) which have been measured with the specified adjusting tool and written in EEPROM (IC106) as backup data.

#### 4. TTL Flash Auto Control Circuit



##### 4 - 1. TTL Flash Auto Control Circuit

###### Constitution

This circuit consists of a light metering IC (IC301) incorporating an SPD, and R122, R123, R301, C302, C303, Q121 and D301.

###### Functions

This circuit starts integration (accumulation of charges in C302) upon receiving the TTL Flash Auto control start signal "Lo" from the CPU - A and outputs the flash stop signal ("Hi" at CHS terminal) when the integral voltage has reached the reference voltage ( $V_{TH}$ ). The CHS signal is output through D301 to CHI/O terminal.

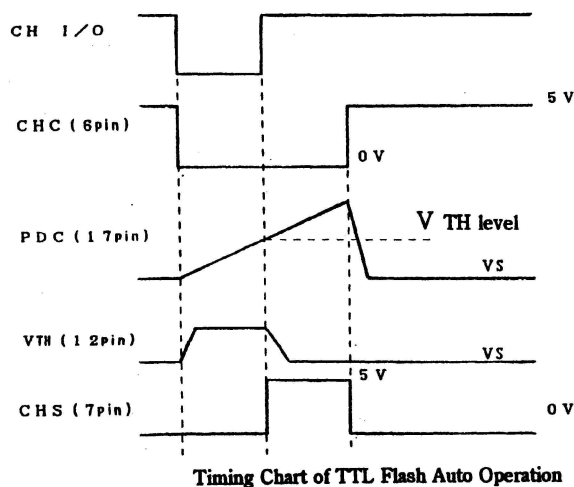
The CPU - A controls TTL Flash Auto indication by receiving the  $\overline{CHS}$  signal, which is the inverted flash stop signal.

For this TTL Flash Auto control operation, the CPU - A, while receiving the charging completion signal of the  $\overline{CHS}$  signal, outputs the TTL Flash Auto control start signal (CHC) when the  $\overline{CHS}$  signal has turned "Hi" after the turning - ON of the Shutter Release Switch. The reference voltage  $V_{TH}$  varies with ISO values. Each ISO value is transferred in the form of 5 - bit data by serial communication and converted to a voltage in the TTL Flash Auto IC.

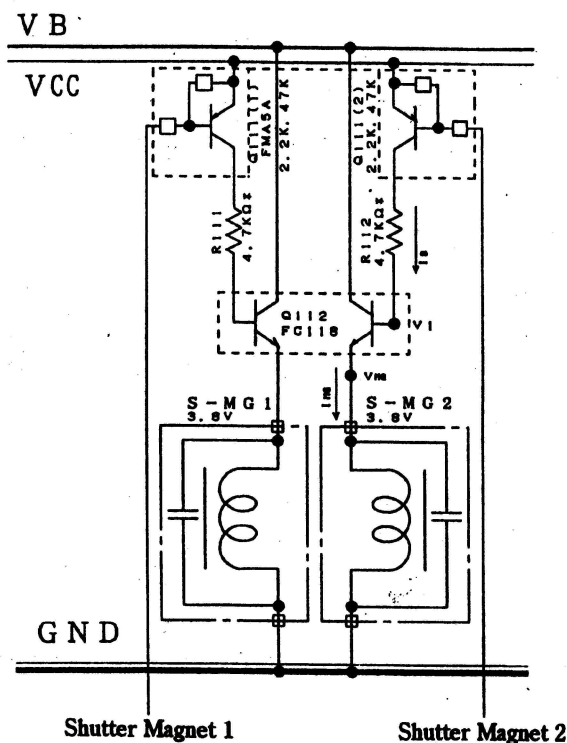
The adjustment of TTL Flash Auto control time of each camera is performed by shifting the ISO data.

(Example: At setting of ISO100, ISO125 is transferred instead of ISO100 data.)

This adjustment is performed with the adjusting tool and the shift of the ISO data is stored in EEPROM (IC106) as backup data.



## 5. Shutter Magnet drive Circuit



### 5 - 1. Shutter Drive

#### Constitution

This circuit consists of the transistor Q111 for predriving, resistors R11 and R12 for base current limiting and the transistor Q112 for driving.

#### Functions

This circuit is basically a regulated DC power circuit. The voltage applied across each magnet is about 4.1V when V B is 4.2V or above or about ( V B - 0.1)V when V B is about 4.1V or below.

The specifications for the shutter are as follows:

DC resistance R MG:  $150 \Omega \pm 15 \Omega$

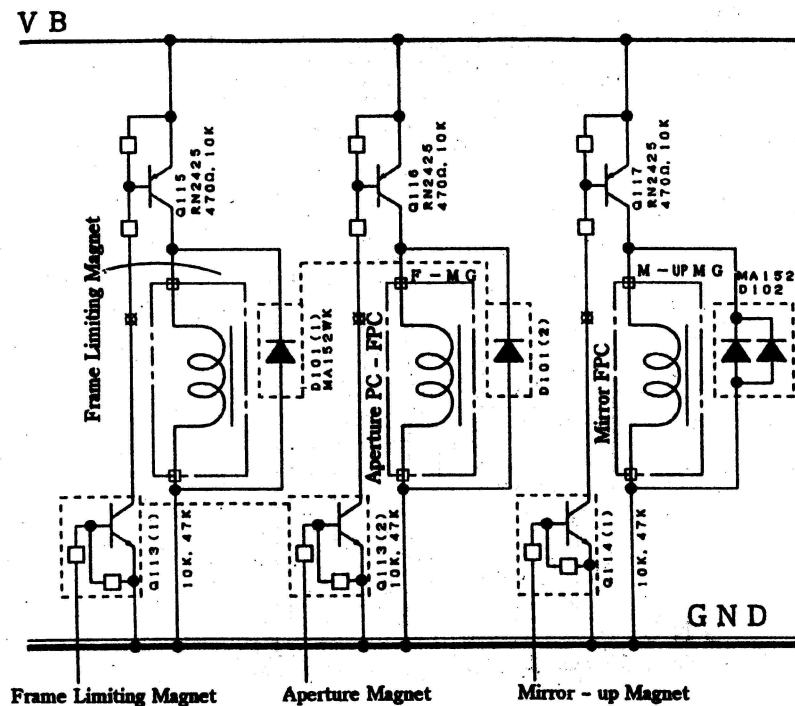
Operating voltage range:  $3.8V \pm 0.35V$

The magnets are controlled as follows:

First Curtain Magnet S - MG1: ON when P12 signal of CPU - A is "Lo"

Second Curtain Magnet S - MG2: ON when P13 signal of CPU - A is "Lo"

## 6. Magnet Drive Circuit



### 6 - 1. Mirror, Aperture and Frame Limiting Magnets

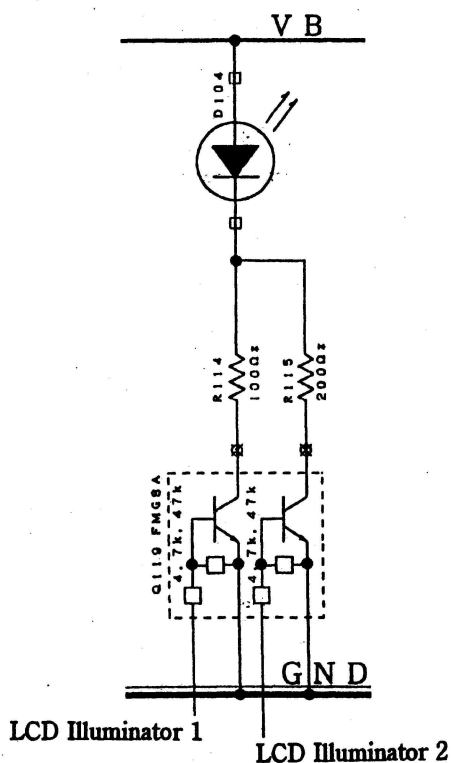
#### Constitution

This circuit consists of the transistors Q113 and Q114 for predriving the respective magnets, the transistors Q115, Q116 and Q117 for driving and the diodes D101 and D102 for absorbing counter electromotive force.

#### Functions

By turning the signal at the required control terminal "Hi" by the CPU - A, the transistor for driving is turned ON to energize the magnet.

## 7. Drive Circuit for Viewfinder LCD Back Light



### 7 - 1. Back Light LED Drive

#### Constitution

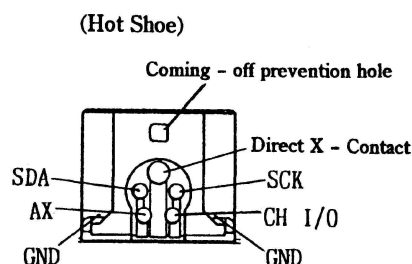
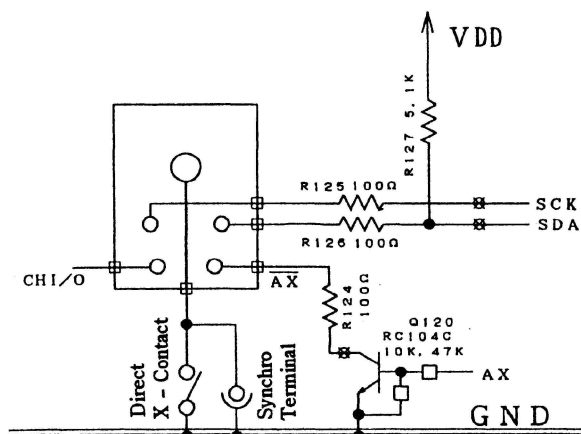
This circuit consists of the transistor Q119 for driving and the resistors R114 and R115 for current limiting.

#### Functions

By controlling the two control lines for the LCD Illuminator 1 and LCD Illuminator 2 directly by the CPU - B, the brightness of the LCD back light is controlled in three steps according to the brightness of external light.

Brightness	Illuminator 1	Illuminator 2
Bright	H	H
Medium	H	L
Dim	L	H

## 8. Flash Circuit



### 8 - 1. Flash Related Circuit

#### Constitution

This circuit consists of the resistors R124, R125 and R126 for protecting the IC terminals, the pull - up resistor R127 for the SDA terminal, and the transistor Q120 for AX output.

#### Functions

For addition of communication function to the hot - shoe terminal, the SCK and SDA terminals are provided in addition to the conventional contact. Since the signals from these terminals are input directly to the ports of the CPU, the resistors R125 and R126 (100 Ω each) are connected to protect the terminals of the CPU.

The AX contact need output signals in the open collector or open drain state, and it outputs signals through Q120.

### 8 - 2. Description of Hot - shoe Terminal

#### X (Synchro Contact)

- When the Flash Unit is in the first curtain synchro mode, flash firing is started by the ON signal from the camera.
- When the Flash Unit is in the second curtain synchro mode, flash is not fired by this signal.

#### AX (Auxiliary Synchro Contact)

- Signal to start flash firing in second curtain synchro mode  
In the second curtain synchro mode, flash firing is started by ON → OFF of AX with the X signal turned ON.

#### CH I/O Contact

- This contact informs the camera of charging:  
Charging not completed: "Lo",      Charging completed: "Hi"  
After flash firing: "Lo",      Power Switch OFF: "Lo"
- This contact receives the flash stop signal.  
After flash firing start, the contact enters the mode "Lo" in which it waits for the flash stop signal from the camera. And it stops flash firing at "Lo" → "Hi" of the signal from the camera.

#### SDA Contact (serial data)

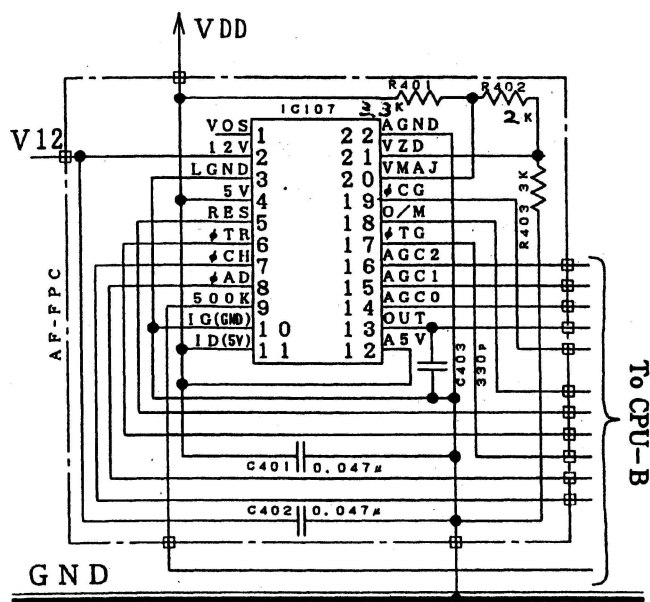
- Data signal between Camera ↔ Flash Unit (bidirectional for input and output) in data communication with Flash Unit

#### SCK Contact (serial clock)

- Cycle clock in serial data communication with Flash Unit  
Camera → Flash Unit (output from camera/input to Flash Unit)



9. Auto Focusing Circuit



9 - 1. Auto Focusing Circuit

Constitution

This circuit consists of the AF - IC (IC107).

Functions

This circuit, controlled by the CPU - B entirely, carries out the arithmetic operation of the distance metering result and indicates it on the Viewfinder Display.

The functions of the AF - IC terminals are as follows:

- OUT  
Outputs the accumulated charge by converting it to a voltage.
- AGC0, AGC1 and AGC2  
Change the amplification.

AGC2	AGC1	AGC0	Amplification
0	0	0	≒ 1
0	0	1	2
0	1	0	4
0	1	1	8
1	0	0	16
1	0	1	≒ 1
1	1	0	32
1	1	1	64

※ For test

- O/M  
Selects an analog signal to be output through the OUT terminal and selects a shift pulse generation signal.

O/M	OUT terminal output	Shift pulse generation factor
H	Sensor output	External signal $\phi$ TG
L	Moniter output	Internal comparater

- $\overline{\phi \text{ CG}}$   
Input terminal for accumulation start signal ("H"  $\rightarrow$  "L": accumulation start)
- $\overline{\phi \text{ TG}}$   
Trigger pulse input terminal for shift pulse generation  
Only with "H" at O/M terminal, shift pulse is generated at fall of  $\phi \text{ TG}$ .
- $\phi \text{ CH}$   
Accumulation signal output terminal: outputs "Hi" level during accumulation.  
"L"  $\rightarrow$  "H" at fall of  $\phi \text{ CG}$  and "H"  $\rightarrow$  "L" at fall of shift pulse.
- $\overline{\phi \text{ TR}}$   
Input terminal for transfer timing clock  
 $\overline{\phi \text{ TR}}$ ="H"  $\rightarrow$  "L" only when "H" is input to  $\overline{\text{RESET}}$  terminal.
- $\phi \text{ AD}$   
Output terminal for AD timing clock  
Indicates that sensor output is steady.  
 $\phi \text{ AD}$ ="L"  $\rightarrow$  "H" when  $\phi \text{ TR}$ ="H"  $\rightarrow$  "L",  $\phi \text{ AD}$ ="H"  $\rightarrow$  "L" when the sensor output has been stabilized after drive pulse generation, and  $\phi \text{ AD}$ ="L" when  $\text{RESET}$ ="L".
- $\overline{\text{RESET}}$   
Reset signal output terminal  
When  $\text{RESET}$ ="L", logic timing is initialized by discharging the CCD at a high speed of 250kHz drive clock.
- $\text{VMAJ}$   
Reference voltage adjusting terminal for internal comparator  
Inputs V DD divided by R401, R402 and R403.
- $\text{VZD}$   
Reference voltage source for amplification for arithmetic operation  
Inputs V DD divided by R401, R402 and R403.

## [DESCRIPTION OF FUNCTION OF ELECTRIC PARTS]

Symbol	Part Name	Model	Functions
IC101	CPU - A	ROM 24K	CPU - A: Entire control of camera (except auto focusing) Various arithmetic operations (light metering, TTL flash Auto control, etc.) Mechanical controls, such as winding, rewinding, aperture and shutter controls Control of external LCD display, input of various information Test mode program, etc.
IC102	CPU - B	ROM 16K	CPU - B: Control of auto focusing and control of viewfinder display Input of film and lens information Control of communication with flash
IC103	Motor Drive IC		Motor drive IC (Winding and rewinding)
IC104	REG - IC	1.7V output	1.7V regulated DC voltage IC (LCD drive of CPU - A)
IC105	RES - IC	3.8V reset	Reset IC (reset of CPU - A)
IC106	EEPROM		EEPROM (Memory for backup data, counter and memory of status information)
IC107	AF - IC		Auto focusing IC (same as that for 300 AF camera)
IC201	Light Metering IC		Light metering IC (same as that for C × ST camera)
IC301	TTL Flash Auto IC		TTL Flash Auto IC (same as that for C × ST camera)
Q101	Chip Digital Tr.	2.2k/47k PNP	B.C. circuit, power ON
Q102	Chip Digital Tr.	2.2k/47k P*2	B.C. circuit, power ON
Q103	Chip Digital Tr.	10k/47k N*2	Predriving of winding motor drive circuit
Q104	Chip Digital Tr.	10k/47k N*2	Predriving of rewind motor drive circuit
Q105	Chip Digital Tr.	10k/47k N*2	Prevention of through - current in winding motor drive circuit
Q106	Chip Digital Tr.	10k/47k N*2	Prevention of through - current in rewind motor drive circuit
Q107	Chip Digital Tr.	4.7k/47k PNP	Predriving of mirror motor brake circuit
Q109	Chip Digital Tr.	RBE=1.5k/NPN	Driving of mirror motor brake circuit
Q110	Chip Digital Tr.	90/800/PNP	Driving of mirror motor drive circuit
Q111	Chip Digital Tr.	2.2k/47k P*2	Predriving of shutter drive circuit
Q112	Chip Digital Tr.	Ic=500mA N*2	Driving of shutter drive circuit
Q113	Chip Digital Tr.	10k/47k N*2	Predriving of drive circuit of Frame Limiting Mg. and Aperture Mg.
Q114	Chip Digital Tr.	10k/47k N*2	Predriving of Drive Circuit of Mirror Mg. and Self - timer LED
Q115	Chip Digital Tr.	470/10k Ic=800mA/P	Driving of drive circuit of Frame Limiting Mg.



Symbol	Part Name	Model	Functions
Q116	Chip Digital Tr.	470/10k Ic=800mA/P	Driving of drive circuit of Aperture Mg.
Q117	Chip Digital Tr.	470/10k Ic=800mA/P	Driving of drive circuit of Mirror Mg.
Q118	Chip Digital Tr.	2.2k/47k PNP	Driving of drive circuit of Self - timer LED
Q119	Chip Digital Tr.	2.2k/47k N*2	Driving of drive circuit of Back Light LED
Q120	Chip Digital Tr.	10k/47k N*2	Inversion of Accessory Shoe CHI/0 and AX signal
Q122	Chip Digital Tr.	47k/47k NPN	Inversion of Data Back imprinting signal
Q123	Chip Digital Tr.	10k/47k N*P	Switching of analog reference voltage of CPU - A
Q124	Chip Digital Tr.	RB=10k/PNP	Switching of analog reference voltage of CPU - A
Q125	Chip Digital Tr.	4.7k/47k NPN	Control of Photo - interrupter LED
Q126	Chip Tr.	High hFE	Prevention of through - current in mirror motor drive circuit
Q127	Chip Tr.	High hFE	Predriving of mirror motor drive circuit
C101	Chip Ceramic Capacitor	0.01 $\mu$	Stabilization of battery check line
C102	Chip Ceramic Capacitor	0.47 $\mu$	Stabilization of LCD drive power
C103	Chip Ceramic Capacitor	0.47 $\mu$	LCD drive 1/3 bias boosting
C104	Chip Ceramic Capacitor	0.47 $\mu$	LCD drive 1/3 bias boosting
C105	Chip Ceramic Capacitor	0.47 $\mu$	LCD drive 1/3 bias boosting
C106	Chip Ceramic Capacitor	0.1 $\mu$	Stabilization of reset output
C107	Chip Tantalum Capacitor	6.8 $\mu$ /7v (Ta)	Bypass capacitor of CPU - A
C108	Chip Tantalum Capacitor	6.8 $\mu$ /7v (Ta)	Bypass capacitor of CPU - B
C109	Chip Ceramic Capacitor	22p	Stabilization of sub clock oscillation of CPU - A
C110	Chip Ceramic Capacitor	22p	Stabilization of sub clock oscillation of CPU - A
C111	Chip Tantalum Capacitor	6.8 $\mu$ /7v (Ta)	Stabilization of data write in EEPROM
C201	Chip Ceramic Capacitor	0.1 $\mu$	Bypass capacitor of light metering IC
C202	Chip Ceramic Capacitor	0.1 $\mu$	Stabilization of light metering output
C301	Chip Ceramic Capacitor	0.1 $\mu$	Bypass capacitor of TTL Flash Auto IC
C302	Chip Ceramic Capacitor	39p	TTL Flash Auto control integration
C303	Chip Ceramic Capacitor	0.01 $\mu$	Stabilization of TTL Flash Auto VTH

Symbol	Part Name	Model	Functions
C401	Chip Ceramic Capacitor	0.047 $\mu$	Bypass capacitor of AF - IC logic circuit
C402	Chip Ceramic Capacitor	0.047 $\mu$	Bypass capacitor of AF - IC analog circuit
C403	Chip Ceramic Capacitor	330p	Stabilization of AF - IC analog output
D101	Chip Diode	A - COMMON	Absorption of counter electromotive force of Frame Limiting Mg. and Aperture Mg.
D102	Chip Diode	A - COMMON	Absorption of counter electromotive force of Mirror Mg.
D103	Self - Timer LED		Self - Timer mode lamp
D104	Back Light LED		Illumination of viewfinder LCD
D105	Chip Zener Diode	3.6V regulated DC voltage	Supply of analog reference voltage for CPU - A
D106	Chip Schottky Diode		Prevention of counter current of charge in power supply bypass capacitor for EEPROM
D301	Chip Diode	A - COMMON	Directing of TTL Flash Auto control signal in one direction
R101	Chip Resistor	22k	Division of VB voltage of battery check circuit
R102	Chip Resistor	47k	Division of VB voltage of battery check circuit
R103	Chip Resistor	150	Base current limiting of winding motor drive Tr.
R104	Chip Resistor	150	Base current limiting of winding/rewind motor drive Tr.
R105	Chip Resistor	150	Base current limiting of rewind motor drive Tr.
R106	Chip Resistor	100	Base current limiting of mirror motor brake Tr.
R107	Chip Resistor	22k	Current limiting of through - current prevention Tr. for mirror motor drive circuit
R108	Chip Resistor	47k	Control stabilization of through - current prevention Tr. for mirror motor drive circuit
R109	Chip Resistor	22k	Base current limiting of mirror motor drive Tr.
R110	Chip Resistor	47k	Control stabilization of mirror motor drive Tr.
R111	Chip Resistor	180	Current limiting of shutter first curtain drive
R112	Chip Resistor	180	Current limiting of shutter second curtain drive
R113	Chip Resistor	220	Current limiting of Self - timer LED
R114	Chip Resistor	100	Current restriction at high brightness of Back Light LED
R115	Chip Resistor	200	Current restriction at low brightness of Back Light LED
R116	Chip Resistor	1M	Pull - up resistance of Main Switch
R117	Chip Resistor	1M	Pull - up resistance of Back Cover Switch
R118	Chip Resistor	330	Current limiting of analog reference voltage terminal of CPU - B
R119	Chip Resistor	330k	Ladder resistor for CPU - B LCD drive
R120	Chip Resistor	330k	Ladder resistor for CPU - B LCD drive
R121	Chip Resistor	330k	Ladder resistor for CPU - B LCD drive


Symbol	Part Name	Model	Functions
R122	Chip Resistor	1k	Prevention of static electricity at CHI/O terminal of Accessory Shoe
R123	Chip Resistor	10k	Pull - up resistance of flash charge completion signal
R124	Chip Resistor	100	Prevention of static electricity at AX terminal of Accessory Shoe
R125	Chip Resistor	100	Prevention of static electricity at SCX terminal of Accessory Shoe
R126	Chip Resistor	100	Prevention of static electricity at SDA terminal of Accessory Shoe
R127	Chip Resistor	5.1k	Pull - up resistance of SDA terminal of Accessory Shoe
R128	Chip Resistor	680	Current limiting of photodiode of Photo - interrupter
R129	Chip Resistor	10k	Pull - up resistance of pulse signal of Photo - interrupter
R130	Chip Resistor	680k	Pull - down resistance of Shutter Dial signal
R131	Chip Resistor	220k	Load resistance of sub clock of CPU - A
R132	Chip Resistor	10M	Load resistance of sub clock of CPU - A
R201	Chip Resistor	27k	Output stabilization of Light Metering IC
R202	Chip Resistor	10k	Output stabilization of Light Metering IC
R301	Chip Resistor	62k	Stabilization of TTL Flash Auto control integration circuit
R401	Chip Resistor	3.3k	Division of AF - IC reference voltage
R402	Chip Resistor	2k	Division of AF - IC reference voltage
R403	Chip Resistor	3k	Division of AF - IC reference voltage
X01	Oscillator (8MHz)		Main clock of CPU - A
X02	Oscillator (32KHz)		Sub clock of CPU - A
X03	Oscillator (5MHz)		Main clock of CPU - B

## [DESCRIPTION OF FUNCTIONS OF IC TERMINALS]

## &lt;IC101&gt; CPU - A

Pin No.	Signal Name	I/O	Signal Functions
1	A. B. C. Setting	I	Reading of A. B. C. Setting ( $0, \pm 0.5, \pm 1.0$ ) (Analog signal input)
2	Shooting Mode	I	Reading of shooting mode (Av, Tv, P, M, X, B, ISO, CF) setting (Analog signal input)
3	Drive Mode	I	Reading of drive mode (  , S, C, green position,  ) setting (Analog signal input)
4	Aperture Setting	I	Reading of aperture setting value ( $4'' \sim 1/4000$ ) (Analog signal input)
5	Exposure Compensation Setting	I	Reading of setting value of exposure compensation ( $-2.0 + 2.0, 1/3EV$ steps) (Analog signal input)
6	Shutter Drive Setting	I	Reading of Shutter Dial setting value (Aperture Ring) (Analog signal input)
7	B. C. Level	I	Detection of battery level (Analog signal input)
8	Light Metering Vout	I	Detection of Light Metering IC output (Analog signal input)
9	Perforation SW	I	Film perforation detection signal
10	DBL/Adjusting Tool ACK	I	Data Back imprinting signal (ON: "L") and Input signal of Adjusting Tool ACK (in common)
11	Preview SW	I	Detection of Preview Button position (ON: "L", OFF: "H")
12	Aperture Pulse	I	Detection of aperture stop - down pulse
13	Adjustment M/A	I	Input terminal for switching between manual adjustment and auto adjustment (Manual: "H", Auto: "L")
14	Frame Limiting SW	I	Frame Limiting Switch for film winding control (During winding: "H")
15	Adjusting Tool C/D	I	Adjusting Tool C/D input
16	CHS	I	Detection of flash charge completion or TTL Flash Auto signal (flash charge completed: "L", not completed: "H"; TTL Flash Auto control: "L" detection)
17	Light Metering Mode SW	I	Light metering mode switching input (Ave: "H", Spot: "L")
18	SCK	O	Serial clock
19	SDO	O	Serial data output
20	SDI	I	Serial data input
21	Back Cover SW	I	Detection of Back Cover Open/Close Switch (Open: "L", Close: "H")
22	Main Switch	I	Detection of Main Switch (ON: "L", OFF: "H")
23	AE - L SW	I	Detection of AE Lock Switch (AE Lock ON: "L", AE Lock OFF: "H")
24	Vref Switching	O	Switching of reference voltage for A/D conversion (Vref=Vdd: "L", Light Metering IC output: "H")

<IC101> CPU - A

Pin No.	Signal Name	I/O	Signal Functions												
25	D3	I/O	Communication data line D3 between CPUs, bidirectional (input/output switching)												
26	D2	I/O	Communication data line D2 between CPUs, bidirectional (input/output switching)												
27	D1	I/O	Communication data line D1 between CPUs, bidirectional (input/output switching)												
28	D0	I/O	Communication data line D0 between CPUs, bidirectional (input/output switching)												
29	M2	O	Control of second curtain magnet (Hold: "L", Release: "H")												
30	M1	O	Control of first curtain magnet (Hold: "L", Release: "H")												
31	REQ	O	Request for communication between CPUs (CPU - A → CPU - B)												
32	ACK	I	Response to communication between CPUs (CPU - B → CPU - A)												
33	RESET	I	CPU - A reset terminal (Reset: "L")												
34	Xcin	I	Sub clock, 32.768kHz oscillator connected												
35	Xcout	O	Same as above												
36	Xin	I	Main clock, 8.0 MHz oscillator connected												
37	Xout	O	Same as above												
38	GND	—	Grounding terminal												
39	Adjusting Tool REQ	I	Adjusting Tool REQ												
40	Mode Switching Detection SW	I	Changing like "H" → "L" → "H" for power - on between B ↔ ISO ↔ CF,  ↔ S												
41	Test	I	Test terminal for adjustment (Test adjusting mode: "L")												
42	Rewind SW	I	Rewind Switch detection (ON: "L", OFF: "H")												
43	DOWN SW	I	DOWN Switch detection (ON: "L", OFF: "H")												
44	UP SW	I	UP Switch detection (ON: "L", OFF: "H")												
45	Release SW	I	Release Switch detection (ON: "L", OFF: "H")												
46	Check SW	I	Check Switch detection (ON: "L", OFF: "H")												
47	Mirror - up SW	I	Mirror - up Switch detection (Mirror - up state ON: "L", OFF: "H")												
48	Mirror - down SW	I	Mirror - down Switch detection (Permission of Mirror - down state ON: "L", OFF: "H")												
49	Mirror Mg	O	Mirror - up start Mg. (Permission of Mirror - up operation ON: "H", OFF: "L")												
50	Aperture Mg	O	Aperture stop - down operation stop Mg. (Aperture stop - down operation stop ON: "H", OFF: "L")												
51	CPU - B Reset	O	Stop of CPU - B at unstable state of voltage and oscillation												
52	Winding Control 2	O	<div>Control of Winding Motor</div> <table><tr><td></td><td>Forward run</td><td>Reverse run</td><td>Short brake</td></tr><tr><td>Control 1</td><td>H</td><td>L</td><td>H</td></tr><tr><td>Control 2</td><td>L</td><td>H</td><td>H</td></tr></table>		Forward run	Reverse run	Short brake	Control 1	H	L	H	Control 2	L	H	H
	Forward run	Reverse run		Short brake											
Control 1	H	L		H											
Control 2	L	H		H											
53	Not used	—													
54	Winding Control 1	O													



## &lt;IC101&gt; CPU - A

Pin No.	Signal Name	I/O	Signal Functions
55	Rewind Control 2	O	Control of Rewind Motor  Forward run   Reverse run   Short brake Control 1            H            L            H Control 2            L            H            H
56	Rewind Control 1	O	
57	Frame Limiting Mg	O	Mg. control to release Frame Limiting Switch (Release ON: "H", OFF: "L")
58	Aperture PC LCD	O	Control of Photo - interrupter LED for detecting aperture stop - down value (Lighting ON: "H", OFF: "L")
59	EEPROM CS	O	CS for serial communication with EEPROM (Select: "H")
60	TTL Flash Auto IC CS	O	CS for serial communication with TTL Flash Auto IC (Select: "L")
61	Not used	-	
62	DATE	O	Data Back imprinting signal (Imprinting: "H")
63	PH - CONT	O	Power hold (DC/DC) control (ON: "H")
64	SEL0, 2	O	Selection of light

<IC101> CPU - A

Pin No.	Signal Name	I/O	Signal Functions
90	Vref	I	Reference voltage for A/D conversion (Light metering: 2.88V, Others: VDD used by switching)
91	GND	-	Grounding terminal
92	Not used	-	
93	COM2	O	Common signal 2 for external indication LCD
94	COM1	O	Common signal 1 for external indication LCD
95	COM0	O	Common signal 0 for external indication LCD
96	VL3	-	LCD drive power input terminal ( $0 \leq VL1 \leq VL2 \leq VL3 \leq V_{cc}$ )
97	VL2	-	LCD drive power input terminal ( $0 \leq VL1 \leq VL2 \leq VL3 \leq V_{cc}$ )
98	C2	-	Capacity external mounting terminal for LCD drive built - in boosting circuit
99	C1	-	Capacity external mounting terminal for LCD drive built - in boosting circuit
100	VL1	-	LCD drive power input terminal ( $0 \leq VL1 \leq VL2 \leq VL3 \leq V_{cc}$ )

## &lt;IC102&gt; CPU - B

Pin No.	Signal Name	I/O	Signal Functions
1	Open F, F3	I	Reading of open aperture value
2	Open F, F2	I	Reading of open aperture value
3	Open F, F1	I	Reading of open aperture value
4	Open F, F0	I	Reading of open aperture value
5	AGC2	O	AF - IC control signal
6	AGC1	O	
7	AGC0	O	
8	AFout	I	AF - IC output detection (Analog signal input)
9	$\phi$ CG	O	AF - IC control signal
10	Not used	-	
11	O/M SELECT	O	AF - IC control signal
12	AF Reset	O	AF - IC control signal
13	$\phi$ TR	O	AF - IC control signal
14	$\phi$ TG	O	AF - IC control signal
15	$\phi$ AD	I	AF - IC control signal
16	$\phi$ CH	I	AF - IC control signal
17	Not used	-	
18	SCK	O	Flash communication SCK (Serial clock)
19	SDO	O	Flash communication Serial data output SDA (Serial data) External offering terminal
20	SDI	I	
21	INTI	I	
22	REQ	I	Request for communication between CPUs (CPU - A $\rightarrow$ CPU - B)
23	500kHz	O	AF - IC system clock (500kHz)
24	ACK	O	Response to communication between CPUs (CPU - B $\rightarrow$ CPU - A)
25	D3	I/O	Communication data line D3 between CPUs, bidirectional (input/output switching)
26	D2	I/O	Communication data line D2 between CPUs, bidirectional (input/output switching)
27	D1	I/O	Communication data line D1 between CPUs, bidirectional (input/output switching)
28	D0	I/O	Communication data line D0 between CPUs, bidirectional (input/output switching)
29	With $\theta$ Compensation	I	Lens :    With Compensation    Without Compensation    No use Terminal [ With $\theta$ Compensation : L        L(L)        H Without $\theta$ Compensation : H        H(L)        H
30	Without $\theta$ Compensation	I	
31	Not used	-	
32	Not used	-	
33	CPU - B Reset	I	Stop of CPU - B operation in unstable state (Reset: "L")
34	Not used	-	
35	Not used	-	
36	Xin	I	Main clock, 8.0 MHz oscillator connected
37	Xout	O	Same as above
38	GND	-	Grounding terminal
39	Not used	-	

## &lt;IC102&gt; CPU - B

Pin No.	Signal Name	I/O	Signal Functions
40	Not used	-	
41	Film Detect SW	I	Cartridge presence/absence detection (Film present: "L", absent: "H")
42	DX4	I	DX code read terminal
43	DX3	I	DX code read terminal
44	DX2	I	DX code read terminal
45	DX1	I	DX code read terminal
46	DX0	I	DX code read terminal
47	Brightness H	O	Brightness : OFF Low brightness Medium brightness High brightness Brightness H : L H L H Brightness L : L L H H
48	Brightness L	O	
49	SEG39	O	RTIM1 - CDEG, RTIM2 - B, C
50	SEG38	O	RTIM2 - A, G, D
51	SEG37	O	RTIM1 - F, RTIM2 - F, E
52	SEG36	O	- , RTIM3 - B, C
53	SEG35	O	RTIM3 - A, G, D
54	SEG34	O	- , RTIM3 - F, E
55	SEG33	O	- , RTIM4 - B, C
56	SEG32	O	RTIM4 - A, G, D
57	SEG31	O	- , RTIM4 - F, E
58	SEG30	O	▼ , R. F. D - B, C
59	SEG29	O	R. F. D - A, G, D
60	SEG28	O	▲ , R. F. D - F, E
61	SEG27	O	R. F. U - B, C, H
62	SEG26	O	R. F. U - A, G, D
63	SEG25	O	- , R. F. U - F, E
64	SEG24	O	R. 1 - A, CDEG, Right
65	SEG23	O	LTIM1 - CDEG, LTIM2 - B, C
66	SEG22	O	LTIM2 - A, G, D
67	SEG21	O	LTIM1 - F, LTIM2 - F, E
68	SEG20	O	LTIM1 - A, LTIM3 - B, C
69	SEG19	O	LTIM3 - A, G, D
70	SEG18	O	R. 2 - CDEG, LTIM3 - F, E
71	SEG17	O	R. 2 - A, LTIM4 - B, C
72	SEG16	O	LTIM3 - A, G, D
73	SEG15	O	- , LTIM4 - F, E
74	SEG14	O	Lower ■ , L. F. D - B, C
75	SEG13	O	L. F. D - A, G, D
76	SEG12	O	Upper ■ , L. F. D - F, E
77	SEG11	O	L. F. U - B, C, H
78	SEG10	O	L. F. U - A, G, D
79	SEG9	O	L. 4 - CDEG, L. F. U - F, E
80	SEG8	O	L. 4 - A, L. 3 - A, CDEG
81	SEG7	O	L. 1 - A, L. 2 - A, CDEG
82	SEG6	O	• , Counter 1 - F, E
83	SEG5	O	⚡ , Left 1, L. 1 - CDEG

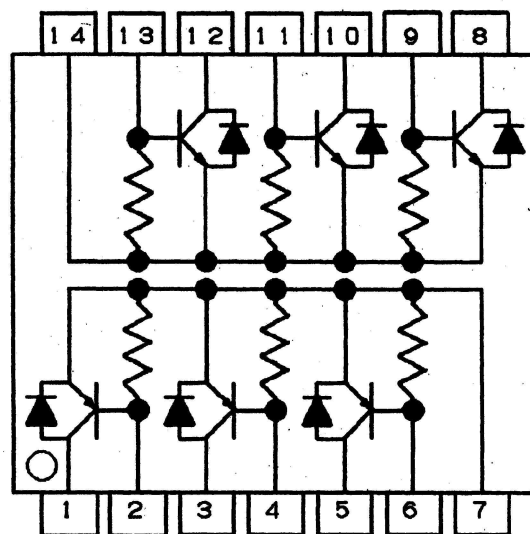
## &lt;IC102&gt; CPU - B

Pin No.	Signal Name	I/O	Signal Functions
84	SEG4	O	[ ], Counter 1 - B, C
85	SEG3	O	Counter 1 - A, G, D
86	SEG2	O	—, Counter10 - B, C
87	SEG1	O	Counter10 - A, G, D
88	SEG0	O	! , Counter10 - F, E
89	Vdd2	-	Power supply voltage (5v)
90	3.6V	I	Reference voltage for A/D conversion (AF - IC:3.6V)
91	GND	-	Grounding terminal
92	Not used	-	
93	COM2	O	Common signal 2 for external indication LCD
94	COM1	O	Common signal 1 for external indication LCD
95	COM0	O	Common signal 0 for external indication LCD
96	VL3	-	LCD drive power input terminal ( $0 \leq VL1 \leq VL2 \leq VL3 \leq V_{cc}$ )
97	VL2	-	LCD drive power input terminal ( $0 \leq VL1 \leq VL2 \leq VL3 \leq V_{cc}$ )
98	C2	-	Capacity external mounting terminal for LCD drive built - in boosting circuit
99	C1	-	Capacity external mounting terminal for LCD drive built - in boosting circuit
100	VL1	-	LCD drive power input terminal ( $0 \leq VL1 \leq VL2 \leq VL3 \leq V_{cc}$ )

<IC103> Motor Drive IC

Pin No.	Port Name	I/O	Symbol Name	Pull Up	Contents of Function
1	PNP1 Collector	O	REWIND	-----	Winding forward:PNP3, NPN2 ON
2	PNP1 Base	I	BASEP1	Built - in	
3	PNP2 Collector	O	COMMON	-----	Winding reverse:PNP2, NPN1 ON
4	PNP2 Base	I	BASEP2	Built - in	
5	PNP3 Collector	O	WIND	-----	Rewind forward:PNP2, NPN3 ON
6	PNP3 Base	I	BASEP3	Built - in	
7	PNP Emitter	-	VB	-----	Rewind reverse:PNP1, NPN2 ON
8	NPN1 Collector	O	WIND	-----	
9	NPN1 Base	I	BASEN1	PULL DOWN	Winding brake:PNP2, PNP3 ON Rewind brake:PNP1, PNP2 ON
10	NPN2 Collector	O	COMMON	-----	
11	NPN2 Base	I	BASEN2	PULL DOWN	All the transistors which are not specified above: OFF
12	NPN3 Collector	O	REWIND	-----	
13	NPN3 Base	I	BASEN3	PULL DOWN	
14	NPN Emitter	-	GND	-----	
					CPU is controlled by four ports: P06: "H" → Winding forward P07: "H" → Winding reverse P10: "H" → Rewind forward P12: "H" → Rewind reverse  P06, P07: "H" → Winding brake P10, P12: "H" → Rewind brake

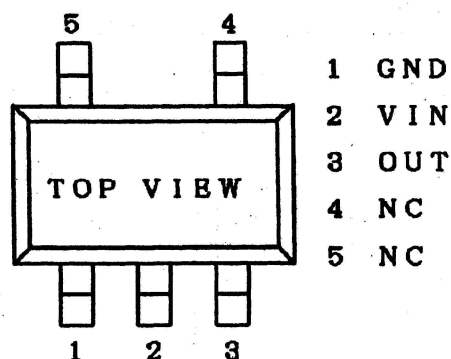
(IC103 Motor Drive IC Pin Arrangement)



**<IC104> Regulator IC**

Pin No.	Port Name	I/O	Symbol Name	Pull Up	Contents of Function
1	GND	-	GND	-----	Grounding terminal
2	Vin	I	IN	-----	Vcc input terminal
3	Vout	O	OUT	-----	1.7V output terminal
4	NC	-	NC	-----	Non - connection
5	NC	-	NC	-----	Non - connection

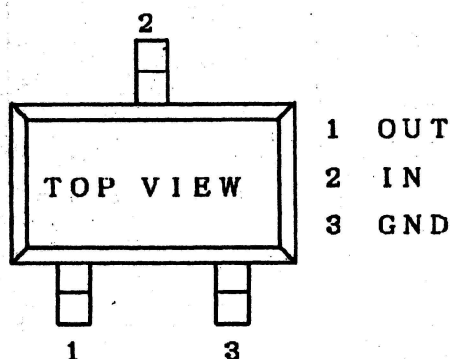
**(IC104 Regulator IC Pin Arrangement)**



**<IC105> Reset IC**

Pin No.	Port Name	I/O	Symbol Name	Pull Up	Contents of Function
1	OUT	O	OUT	-----	"L" output and reset of IC101 (CMOS output)
2	IN	I	IN	-----	Detection of $V_{cc}=3.75 \pm 0.15V$
3	GND	-	GND	-----	Grounding terminal

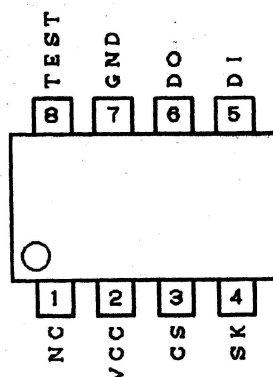
**(IC105 Reset IC Pin Arrangement)**



## &lt;IC106&gt; EEPROM

Pin No.	Port Name	I/O	Symbol Name	Pull Up	Contents of Function
1	NC	-	NC	-----	Non - connection
2	Vcc	-	VDD	-----	Power supply (VDD $\approx$ 4.8V)
3	CS	I	CS	-----	Chip select
4	SK	I	SCK	-----	Serial clock input
5	DI	I	SDO	-----	Serial data input
6	DO	O	SDI	-----	Serial data output
7	GND	I	GND	-----	Grounding terminal
8	TEST	-	TEST	-----	Test terminal for manufacturer (connected to GND)

(IC106 EEPROM Pin Arrangement)



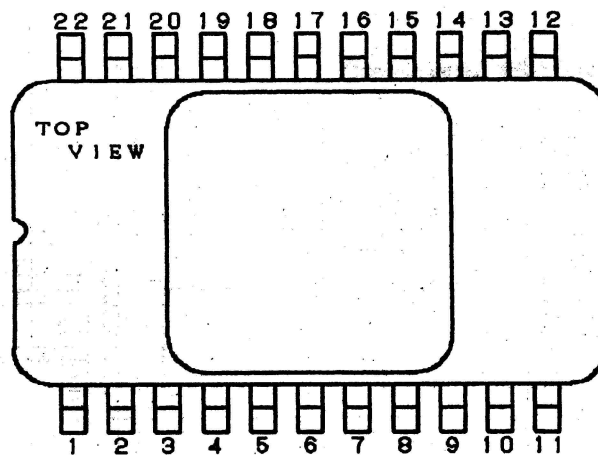
## &lt;IC107&gt; AF - IC

Pin No.	Port Name	I/O	Symbol Name	Pull Up	Contents of Function
1	Vos	O	Vos	-----	Test terminal
2	12V	-	V12	-----	12V power input
3	LGND	-	LGND	-----	Grounding terminal (logic system)
4	5V	-	L5V	-----	5V power input (power to logic system)
5	RES	I	RESET	-----	Reset at "L": initialize, high - speed discharge at 250kHz
6	$\phi$ TR	I	TR	-----	Input terminal for transfer timing clock
7	$\phi$ CH	O	CH	-----	Accumulation signal output terminal (during accumulation: "H")
8	$\phi$ AD	O	AD	-----	AD timing clock output
9	500K	I	CK	-----	Reference clock (500kHz) input
10	IG	I	IG	-----	Test terminal
11	ID	-	ID	-----	Test terminal
12	A5V	-	A5V	-----	5V power input (power to analog system)



Pin No.	Port Name	I/O	Symbol Name	Pull Up	Contents of Function
13	OUT	O	OUT	-----	Analog signal output terminal
14	AGC0	I	AGC0	-----	Input terminal for amplification switching signal For test AGC0    0 1 0 1 0 1 0 1 AGC1    0 0 1 1 0 0 1 1 AGC2    0 0 0 0 1 1 1 1 Amplification   1 2 4 8 16 1 32 64
15	AGC1	I	AGC1	-----	
16	AGC2	I	AGC2	-----	
17	$\phi$ TG	I	TG	-----	Trigger pulse input terminal for shift pulse generation
18	O/M	I	O/M	-----	Selection of output signal ("H": sensor, "L": monitor)
19	$\phi$ CG	I	CG	-----	Accumulation start signal input ("H" $\rightarrow$ "L": start)
20	VMAJ	I	VMAJ	-----	Reference voltage adjusting terminal for internal comparator 3V
21	VZD	-	VZD	-----	Reference voltage power for operational amplifier (1.8V)
22	AGND	-	AGND	-----	Grounding terminal (analog system)

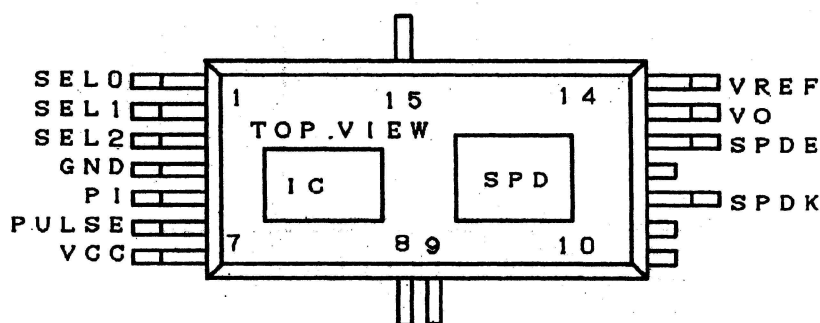
(IC107 AF - IC Pin Arrangement)



**<IC201> Light Metering IC**

Pin No.	Port Name	I/O	Symbol Name	Pull Up	Contents of Function
1	SEL0	I	SEL0	Built - in	Divided light metering select terminal SEL0=SEL1=SEL2=H: Average metering SEL0=SEL2, SEL1=H: Spot metering
2	SEL1	I	SEL1	Built - in	
3	SEL2	I	SEL2	Built - in	
4	GND	-	GND	-----	Grounding terminal
5	PI	I	PI	-----	Photo - coupler signal input terminal
6	PULSE	O	PULSE	-----	Photo - coupler sharpening output terminal
7	Vcc	-	Vcc	-----	Power supply input (VDD 4.8V connected)
8	SPDB	-	SPDB	-----	Internal SPD connecting terminal (Not used: open)
9	SPDA	-	SPDA	-----	
10	SPDD	-	SPDD	-----	
11	SPD K	-	SPD K	-----	
12	SPDE	-	SPDE	-----	
13	Vo	O	Vo	-----	Light metering output terminal
14	Vref	O	VREF	-----	Reference voltage output terminal (TYP 2.88V)
15	SPDC	-	SPDC	-----	Internal SPD connecting terminal (Not used)

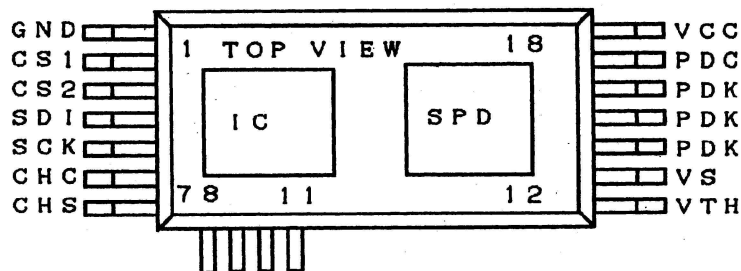
(IC201 Light Metering IC Pin Arrangement)



<IC301> TTL Flash Auto IC

Pin No.	Port Name	I/O	Symbol Name	Pull Up	Contents of Function
1	GND	-	GND	-----	Grounding terminal
2	CS1	I	TTL FLASH AUTO IC CS1	Built - in	Chip select signal (selection at "L": from CPU - A)
3	CS2	I	TTL FLASH AUTO IC CS2	-----	Connected to GND
4	SDI	I	SDI	Built - in	Serial data in: input of ISO data from CPU - A
5	SCK	I	SCK	Built - in	Serial clock: input of clock from CPU - A
6	CHC	I	CHC	Built - in	TTL Flash Auto control start signal (TTL Flash Auto control during "L")
7	CHS	O	CHS	-----	TTL Flash Auto control stop signal (stop at rise)
8	JZ	-	J2	-----	Not used (open)
9	NC	-	NC	-----	
10	NC	-	NC	-----	
11	GND	-	GND	-----	
12	VTH	-	VTH	-----	Reference voltage for TTL Flash Auto control integration (changing by ISO)
13	VS	O	VS	-----	Reference voltage output terminal (TYP 1.22V)
14	PDK	-	PDK	-----	Internal SPD connecting terminal : cathode (Not used: open)
15	PDK	-	PDK	-----	
16	PDK	-	PDK	-----	
17	PDC	-	PDC	-----	Internal SPD connecting terminal : anode (Not used: open)
18	VCC	-	VCC	-----	Power supply terminal (connected to VDD)

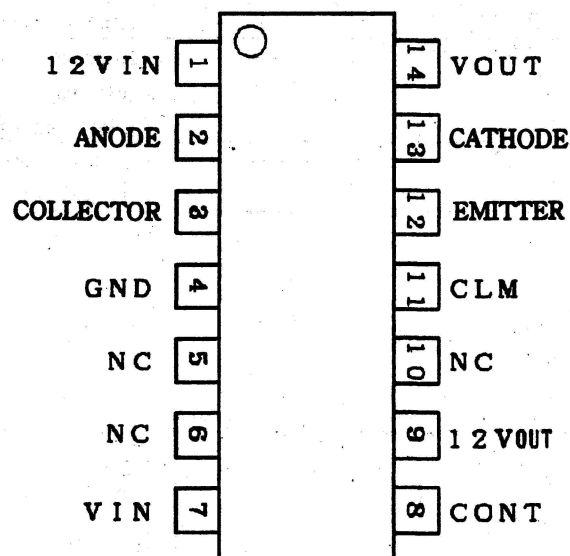
(IC301 Light Metering IC Pin Arrangement)



<IC501> DC/DC Converter IC

Pin No.	Port Name	I/O	Symbol Name	Pull Up	Contents of Function
1	12V IN	I	SERIES POWER OUT	-----	12V AC voltage input
2	ANODE	-	ANODE	-----	5V AC voltage input
3	Collector	O	COLLECTOR	-----	Coil primary - side control terminal
4	GND	-	GND	-----	Grounding terminal
5	NC	-	NC	-----	Non - connection
6	NC	-	NC	-----	Non - connection
7	V B	-	V IN	-----	Battery voltage input
8	CONT	I	CONTROL	-----	Operation control terminal ("L" active)
9	12V OUT	O	SERIES POWER OUT	-----	12V output terminal
10	NC	-	NC	-----	Non - connection
11	CLM	I	CLM	-----	Current feedback terminal (connected to GND)
12	Emitter	-	EMITTER	-----	GND of coil control terminal
13	Cathode	-	CATHODE	-----	5V feedback
14	V OUT	O	OUTPUT1	-----	5V output

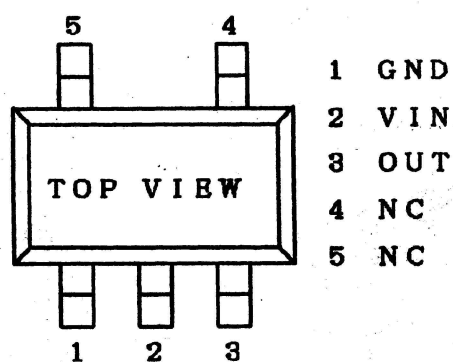
(IC501 DC/DC Converter IC Pin Arrangement)



**<IC502> Regulator IC**

Pin No.	Port Name	I/O	Symbol Name	Pull Up	Contents of Function
1	GND	-	GND	-----	Grounding terminal
2	Vin	I	IN	-----	Terminal for input of VB, DC/DC output
3	Vout	O	OUT	-----	5V output terminal
4	NC	-	NC	-----	Non - connection
5	NC	-	NC	-----	Non - connection

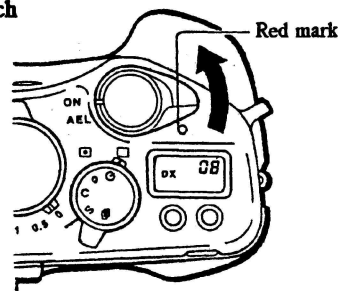
**(IC502 Regulator IC Pin Arrangement)**



## [FUNCTIONS OF SWITCHES]

### <Operation Switches, Dials and Levers>

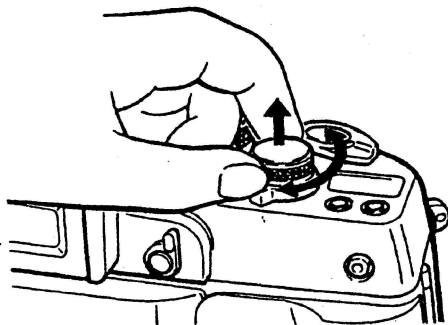
#### ○ Main Switch



- OFF Main Switch OFF
- ↑ ↓ Main Switch ON
- ON Main Switch ON
- ↑ ↓ AE Lock (with Main Switch turned ON)
- AEL AE Lock (with Main Switch turned ON)

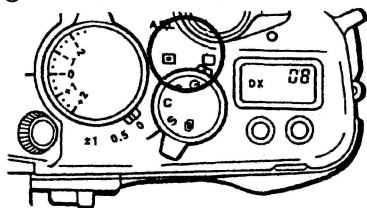
#### ○ Drive Mode Dial

Set the Drive Mode Dial by pulling up and turning.



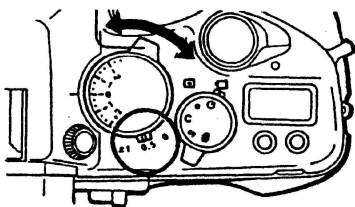
- ⏻ Self - timer
- ↑ ↓ Green position
- Green position
- ↑ ↓ Continuous
- C Continuous
- ↑ ↓ Single
- S Single
- ↑ ↓ Multiple exposure (For setting, see "UP/DOWN Switch")
- 📷 Multiple exposure (For setting, see "UP/DOWN Switch")

#### ○ Metering Mode Selector Lever



- ☐ Center - weighted average metering
- ↑ ↓ Spot metering
- 📷 Spot metering

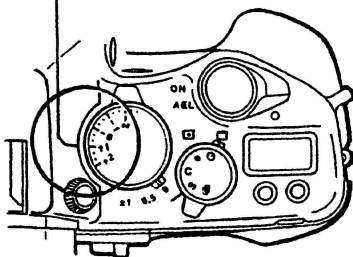
#### ○ A.B.C. Lever



- 0 A.B.C. setting OFF
- ↑ ↓ A.B.C. operation setting of  $\pm 0.5\text{EV}$
- 0.5 A.B.C. operation setting of  $\pm 0.5\text{EV}$
- ↑ ↓ A.B.C. operation setting of  $\pm 1.0\text{EV}$
- 1 A.B.C. operation setting of  $\pm 1.0\text{EV}$

#### ○ Exposure Compensation Dial

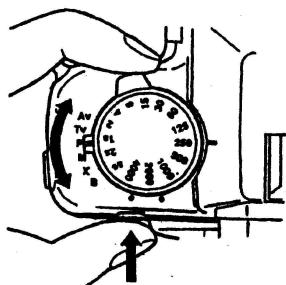
Exposure compensation indicator



- 0
- $\frac{1}{3}$  ↔ - $\frac{2}{3}$  ↔ -1.0 ↔ -1 $\frac{1}{3}$  ↔ -1 $\frac{2}{3}$  ↔ -2.0
- + $\frac{1}{3}$  ↔ + $\frac{2}{3}$  ↔ +1.0 ↔ +1 $\frac{1}{3}$  ↔ +1 $\frac{2}{3}$  ↔ +2.0

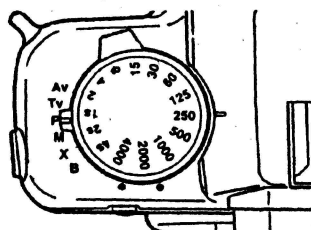
# ○ Exposure Mode, ISO and CF Setting Selector Lever

For setting, turn the Exposure Mode Selector Lever while pressing the Exposure Mode Lock Release Button.



- A V Aperture Priority AE mode
- ↑ ↓
- T V Shutter Priority AE mode
- ↑ ↓
- P Program AE mode
- ↑ ↓
- M Manual Exposure mode
- ↑ ↓
- X Flash photography
- ↑ ↓
- B Bulb
- ↑ ↓
- I S O ISO setting (For setting, see "UP/DOWN Switch")
- ↑ ↓
- C F CF setting (For setting, see "UP/DOWN Switch")

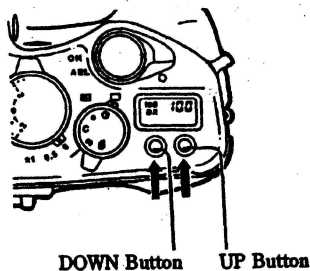
## ○ Shutter Speed Dial



4000↔2000↔1000↔500↔250↔125↔60↔30  
 ↓  
 4S ↔ 2S ↔ 1S ↔ 2 ↔ 4 ↔ 8 ↔ 15 ↗

## ○ UP/DOWN Switch

### ① ISO Setting



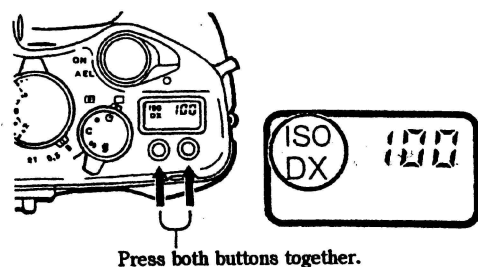
Perform ISO setting by means of the UP/DOWN Switch when the Exposure Mode, ISO and CF Selector Lever is in the "ISO" position.

UP Switch ON (clockwise) → ← DOWN Switch ON (counterclockwise)

DX↔6↔8↔10↔12↔16↔20↔25↔32↔40↔50↔64↔80↔100↔125↔160↔200↔320  
 ↓  
 6400↔5000↔4000↔3200↔2000↔1600↔1250↔1000↔800↔640↔500↔500↔400

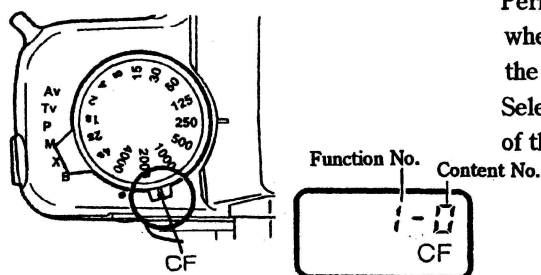
From any position, the setting is restored to the "DX" position by pressing both the UP and DOWN Buttons together.

## ② ISO Setting Check



In any shooting mode (except ISO, CF and multi - exposure setting modes), ISO setting is displayed by pressing the UP and DOWN Buttons together.

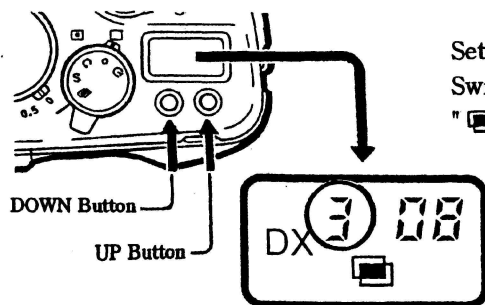
## ③ CF (Custom Function) Setting



Perform CF setting by means of the UP/DOWN Switch when the Exposure Mode, ISO and CF Selector Lever is in the "CF" position.

Select a Function No. by the DOWN Button and a Content No. of the Function by the UP Button.

## ④ Multi - exposure Count Setting

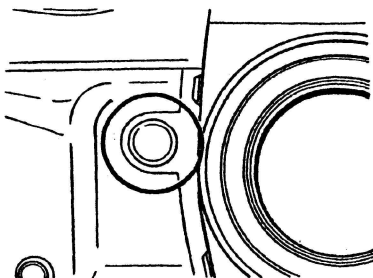


Set the number of exposures by means of the UP/DOWN Switch when the Drive Mode Dial is in the Multi - Exposure " " position.

## ○ Check Switch

Depress the Shutter Release Button halfway to turn on the Check Switch, and power will be supplied to circuits and light metering (distance metering) will be activated.

## ○ Exposure Check Switch



Depress the Shutter Release Button halfway to turn on the Check Switch, and power will be supplied to circuits and light metering (distance metering) will be activated.



☐ **Shutter Release Switch**

Depress the Shutter Release Button fully, and the shutter will operate.

☐ **External Release Switch**

This switch operates the shutter upon receiving the electric signal from the accessory.

☐ **Rewind Switch**

Turn the Rewinding Lever in the direction of the arrow while pressing the Rewinding Lock Release Button, and film rewinding will be started.

☐ **Depth of Field Preview Switch**

In any exposure mode excepting "Tv" and "P", the turning - on of the Depth of Field Preview Switch will stop down aperture to a preset value.

**<Internal Mechanical Switches>**

☐ **Back Cover Switch**

This switch detects the opening and closing of the Back Cover.

"H" ..... Back Cover close

"L" ..... Back Cover open

☐ **Frame Limiting Switch**

This switch, coupled with the winding sprocket, detects the winding by one frame.

"H" ..... During winding

"L" ..... Winding is stopped

☐ **Mirror - up Switch**

This switch, coupled with the Mirror Motor, detects the mirror up.

"H" ..... Mirror in the down position

"L" ..... Mirror in the up position

☐ **Mirror - down Switch**

This switch, coupled with the Mirror Motor, detects the mirror down.

"H" ..... Mirror in the up position

"L" ..... Mirror in the down position

ON at switching between Self - timer  $\longleftrightarrow$  Multi - exposure